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THE

RETROSPECT

OF

PRACTICAL MEDICINE AND SURGERY

BEING

A Half-Yearly Journal

CONTAINING A RETROSPECTIVE VIEW OF EVERY DISCOVERY AND PRACTICAL IMPROVEMENT IN THE MEDICAL SCIENCES

EDITED BY

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VOLUME CVI..... ..JANUARY.....1893

UNIFORM AMERICAN EDITION

NEW YORK:
G. P. PUTNAM'S SONS
27 West Twenty-third Street
1893

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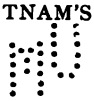

Printed and Bound by
The Knickerbocker Press, New York
G. P. Putnam's Sons

CONTENTS OF VOL. CVI.

SYNOPSIS - - - - - - - - - - PAGES 226–316

(*For Contents of Synopsis, see pp.* 25–30.)

PRACTICAL MEDICINE.

GENERAL MEDICINE AND THERAPEUTICS.

	ARTICLE.	AUTHOR.	PAGE.
1	On the Treatment of Fever by the External Use of Cold Water - - -	*Dr. Graham Steell*	1
2	On the Clinical Use of Exalgine - -	*Dr. John Gordon*	3
3	On Exalgine in Graves's Disease, and the Poisonous Dose of Exalgine - -	*Dr. Thomas Churton*	5
4	On the Dangers of Antipyretics in Typhoid Fever - - - - - -	*Dr. J. H. Musser*	6
5	On Gout and the Mode in which Uric Acid Produces its Injurious Effects -	*Sir Wm. Roberts*	8
6	On the Diet and Regimen of Gout -	*Sir Wm. Roberts*	11
7	On the Use of Medicinal Substances in Gout - - - - - - -	*Sir Wm. Roberts*	13
8	A Case of Myxœdema Treated by Subcutaneous Injections of an Extract of Sheeps' Thyroid (*illustrated by photographs*) - - - - - - -	*Dr. Alex. Napier*	16
9	On the Treatment of Myxœdema with Thyroid Juice - - - - -	*G. R. Murray, Esq.*	19
10	On a Vegetable Albumen "Aleuronat" for Diabetes - - - - -	*Dr. Wilhelm Ebstein*	22
11	The Hæmatemesis of Anæmic Young Women - - - - - - -	*Dr. Henry Handford*	24
12	On Dyspnœa and its Treatment by Drugs	*Dr. W. T. Gairdner*	25
13	On the Symptoms, and Treatment by Intestinal Antisepsis, of Enteric Fever	*Dr. Richard Caton*	27

DISEASES OF THE NERVOUS SYSTEM.

14	On Local Anæsthesia as a Guide in the Diagnosis of Lesions of the Lower Spinal Cord (*woodcuts*) - - -	*Dr. M. Allen Starr*	31

ARTICLE.	AUTHOR.	PAGE.
15 Remarks upon the Paralyses of Children which Occur during and after Infectious Diseases	*Dr. M. I. Bassette*	37
16 On Vertigo of Arterio-Sclerosis	*Dr. Archibald Church*	39
17 On Peripheral Neuritis in Typhoid Fever	*Dr. Judson S. Bury*	41

DISEASES OF THE ORGANS OF CIRCULATION.

18 The Different Forms of Cardiac Pain	*Dr. Samuel C. Chew*	43
19 On the Rheumatic Carditis of Childhood	*Dr. Octavius Sturges*	46
20 On the Prognosis of Valvular Disease of the Heart	*Dr. James A. Lindsay*	50

DISEASES OF THE ORGANS OF RESPIRATION.

21 On Tuberculosis of the Pharynx and Larynx	*Dr. P. McBride*	52
22 On Interlobular Emphysema of the Lungs	*Dr. E. M. Skerritt*	55
23 On Empyema, Basal Lung Disease, and Bronchiectatic Cavities	*Dr. Alex. James*	58
24 On Aspiration in Pneumothorax	*G. A. Sutherland, Esq.*	61

DISEASES OF THE ORGANS OF DIGESTION.

25 On Catarrhal Gastritis	*Dr. H. N. Moyer*	63
26 On Suppurative Pyle-Phlebitis	*Dr. J. S. Bristowe*	65
27 On the Treatment of Gastric Ulcer	*Dr. Julius Dreschfeld*	68
28 On the Limits of Medicine and Surgery in Appendicitis	*Dr. C. B. Ball*	70
29 On Abdominal Tumours from Retention	*J. Hutchinson, Esq.*	73

DISEASES OF THE URINARY ORGANS.

30 On the Therapeutics of Uric Acid Gravel	*Sir Wm. Roberts*	74
31 On the Specific Gravity of the Urine in Diabetes	*Sir E. H. Sieveking*	78
32 On some Sources of Error in Testing for Sugar in the Urine	*Dr. George Johnson*	78
33 On Dropsy with Kidney Disease	*Dr. Nestor Tirard*	80

SURGERY.

GENERAL SURGERY AND THERAPEUTICS.

34 A Simple Method of Dressing Operation Wounds	*Herbert Higgins, Esq.*	84
35 On the Use of Iodine Trichloride in Surgery	*Dr. Wm. T. Belfield*	85
36 On Streptococcus Osteomyelitis in Children	*Dr. W. W. Van Arsdale*	87

ARTICLE.	AUTHOR.	PAGE.
37 On the Treatment of Spinal and Other Tubercular Abscesses	*Frederick Treves, Esq.*	88
38 On a Method Better than Suspension or Applying a Plaster Jacket (*woodcut*)	*Richard Barwell, Esq.*	91
39 On the Treatment of Tuberculous Glands in the Neck	*Dr. Charles T. Poore*	93
40 The Treatment of Epistaxis	*Dr. T. K. Hamilton*	96
41 The Surgical Aspect of the Paralysis of New-born Children	*Dr. Robert W. Lovett*	98
42 On Primary Epithelioma of Lymphatic Glands	*H. T. Butler, Esq.*	101

DISEASES OF BONES, JOINTS, MUSCLES, ETC.

43 On the Treatment of Simple Fracture of the Shaft of the Femur with the Long Splint	*Dr. N. F. Graham*	106
44 On Pott's Fracture at the Ankle	*Dr. Lewis A. Stimson*	108
45 On Ununited Fractures in Children	*D'Arcy Power, Esq.*	111
46 Some Practical Points in the Treatment of Club-foot (*with woodcuts*)	*Dr. A. B. Judson*	114
47 On Ganglion	*Dr. Charles S. Evans*	117
48 On Tuberculosis of the Tendon-Sheaths	*Dr. Charles S. Evans*	121
49 On Some Affections of the Tendon-Sheaths and Bursæ	*Dr. Royal Whitman*	125
50 On the Operative Treatment of Tuberculous Bone and Joint Disease	*W. W. Cheyne, Esq.*	127
51 On the Treatment of Uncomplicated Pott's Disease	*E. M. Little, Esq.*	129
52 Statistics of Thirty-seven Cases of Tuberculous Disease of the Hip-Joint, of which Thirty-six were Treated by Excision	*Drs. Bilton Pollard and C. F. Marshall*	132
53 On the Relative Value of Arthrectomy and Excision in the Treatment of Tuberculous Joint	*W. W. Cheyne, Esq.*	135
54 On the Mechanical Treatment of Tuberculous Diseases of the Spine (*with woodcuts*)	*W. W. Cheyne, Esq.*	138
55 On the Radical Cure of Psoas Abscess	*R. W. Murray, Esq.*	142

ORGANS OF THE RESPIRATORY SYSTEM.

56 Treatment of a Case of Chronic Pleurisy by Continuous Drainage	*B. Baskett, Esq.*	144
57 On Foreign Bodies in the Pharynx and Larynx	*A. J. Brady, Esq.*	145

ALIMENTARY CANAL.

58 Volkmann's Operation for Cancer of the Tongue	*Dr. N. P. Dandridge*	146
59 Cicatricial Stricture of the Pylorus; Pyloroplasty; Cure	*James Limont, Esq. and Dr. F. Page*	147

ARTICLE.	AUTHOR.	PAGE.
60 On Cholecystenterostomy	*Dr. J. McFadden Gaston*	149
61 On the Causes and Treatment of Intussusception	*Dr. Cecil Y. Biss and A. P. Gould, Esq.*	152
62 On Intestinal Anastomosis and Suturing	*Dr. Robert Abbe*	154
63 Acute Intestinal Obstruction: Operation by Short Circuit	*E. Atkinson, Esq.*	156
64 On the Use of "Taxis" in Strangulated Hernia	*W. H. Bennett, Esq.*	158
65 Notes of a Case of Excision of the Rectum by the Sacral Route	*W. H. Brown, Esq.*	160
66 The Treatment of Imperforate Anus	*Harrison Cripps, Esq.*	162
ORGANS OF URINE AND GENERATION.		
67 Salol in the Treatment of Chronic Cystitis	*Dr. E. M. Sympson*	164
68 On the Complete Abandonment of the Operations for Removing Entire Calculi from the Bladder	*Surgeon-Major J. Forbes Keith, M.D.*	166
69 On Suprapubic Prostatectomy	*C. W. M. Moullin, Esq.*	169
70 On Perineal Drainage in Suprapubic Lithotomy	*H. Herbert, Esq.*	173
AFFECTIONS OF THE SKIN.		
71 On Favus and its Treatment	*Dr. S. Guthrie Evans*	174
72 On the Treatment of Dermatitis Herpetiformis	*Dr. Geo. T. Elliot*	176
73 On the Destruction of Hair by Electrolysis	*Dr. John T. Bowen*	177
SYPHILITIC AFFECTIONS.		
74 On Syphilitic Joint Diseases	*J. Hutchinson, Jr., Esq.*	179
75 On Certain Modes of Treatment which Interfere with the Diagnosis of Syphilis	*Arthur Cooper, Esq.*	182
76 On Recent Advances in the Treatment of Gonorrhœa	*Dr. J. H. Nicoll*	184
AFFECTIONS OF THE EYE AND EAR.		
77 A Method of Infection and Treatment of Purulent Ophthalmia	*Dr. G. M. Gould*	186
78 On the Treatment of Trichiasis and Entropion	*Dr. W. A. McKeown*	188
79 Successful Case of Ligature of Internal Jugular Vein and Trephining Lateral Sinus in an Ear Case, while the Symptoms of Pyæmia were Well Pronounced	*H. H. Clutton, Esq.*	190
80 On Aural Polypi	*M. Sheild, Esq.*	192
81 On Labyrinthine Deafness treated by Pilocarpin	*G. P. Field, Esq.*	196
82 On Cancer of the Ear	*Sir William Dalby*	197
83 A Case of Cerebellar Abscess Successfully Treated by Operation	*Henry P. Dean, Esq.*	199

OBSTETRICS AND GYNÆCOLOGY.

ARTICLE.	AUTHOR.	PAGE.
84 On Simple Chronic Mastitis	*Dr. H. B. Robinson*	202
85 On Intra-venous Injection of "Normal Salt Solution for the Grave Hemorrhage of Midwifery (*with woodcut*)	*Dr. H. S. Spencer*	204
86 Peritonitis; its Nature and Prevention	*Lawson Tait, Esq.*	206
87 On the Treatment of Posterior Rotation of the Occiput During Labour	*Dr. Edward P. Davis*	211
88 On the Treatment of Placenta Prævia	*Dr. A. Donald*	213
89 On the Treatment of Abortion	*Dr. William Duncan*	215
90 On the Treatment of Fungoid and Other Diseases of the Lining Membrane of the Uterus	*Dr. Lombe Atthill*	218
91 On an Operation for the Cure of Aggravated Retroflexion of the Uterus (*with woodcuts*)	*Dr. James Braithwaite*	221
92 On Fibroid Tumours of the Uterus	*Dr. John Homans*	223

SYNOPSIS CONTENTS.

SYNOPSIS.	AUTHOR.	PAGE.
Saline Injections in Acute Anæmia	*Dr. P. T. Neustube*	226
Akromegalia and Akromikria	*Dr. Stembe*	226
Antipyretic Treatment in Fever	*Dr. Graham Steell*	227
Bromide of Ethyl Narcosis	*Dr. Alfred Gleich*	228
On Chilblains	*Dr. Brogg*	228
Sulphur in Chlorosis	*Prof. Schulz*	228
On Cocainism	*Dr. Conolly Norman*	229
On Creasote and its Elements	*Dr. E. Main*	229
Erlich's Test of the Urine in Typhoid Fever	*Dr. A. E. Edwards*	230
Management of Gout	*Prof. H. Nothnagel*	230
Treatment of Graves's Disease	*Revue de Thérapeutique*	231
Chloralamide in Insomnia	*Dr. Joseph Collins*	231
The Bactericidal Properties of Iodoform	*W. Watson Cheyne, Esq.*	232
Diagnostic Value of the Eosinophile Leucocyte in Leucocythemia and Hodgkin's Disease	*Dr. Kantback*	232
Arsenic in Lymphosarcoma	*Dr. E. Romberg*	233
On Lysol	*Dr. Dorland*	233
On Osteo-Arthropathy of Pulmonary Origin	*Dr. Moebius*	234
Osteo-Arthropathie Pneumique of Marie	*Amer. Journ. of Med. Sc.*	234
Transfusion of Blood in Pernicious Anæmia	*Dr. Brakenridge*	235
On Piperazin	*Dr. Dorland*	236
Nitro-Glycerine in Raynaud's Disease	*Dr. Cates*	236
Differential Diagnosis of Rötheln and Scarlet Fever	*Medical News*	237
Treatment of the Throat in Scarlet Fever	*Dr. Graham Steell*	237
Poisonous Action of Sulphonal	*Dr. Camillo Fürst*	237
Sulphonal as a Sedative and Hypnotic	*Dr. T. Carlyle Johnstone*	238
On Thiophen as a Disinfectant	*Revue de Thérapeutique*	238

SYNOPSIS.	AUTHOR.	PAGE.
The Cold-Water Treatment of Typhoid Fever	*Dr. G. Wilkins*	239
Spontaneous Liberation and Precipitation of Uric Acid from Urine	*Sir Wm. Roberts*	240
The Mutual Relations between Uric Acid Gravel and Gout	*Sir Wm. Roberts*	241
Anæsthesia in Spinal Cord Lesions, Hysterical Paralysis, and Peripheral Neuritis	*Dr. M. Allen Starr*	242
On Secondary Contracture in Bell's Palsy	*Dr. Wm. Evans*	242
On Cerebro-Spinal Meningitis	*Dr. Trevelyan*	243
Surgical Treatment of Epilepsy	*Dr. Sachs & Prof. Gerster*	243
On Hereditary or Huntingdon's Chorea	*Dr. Ernest T. Reynolds*	244
Local Anæsthesia in Disease of the Spinal Cord	*Dr. M. Allen Starr*	244
On Paraplegia in Pott's Disease	*Muirhead Little, Esq.*	245
Rheumatism and Chorea	*Drs. Walton & Vickery*	246
Destruction of the Septum Nasi in Tabes Dorsalis	*Dr. A. G. Barrs*	246
The Causes of Tabes Dorsalis	*Dr. Raymond*	247
Treatment of Tabes Dorsalis by Bonuzzi's Method	*Revue de Thérapeutique*	247
Treatment of Aneurism by Extirpation	*Dr. Kübler*	248
Angina Pectoris of Hysterical Origin	*Prof. Charcot*	248
Digitalis in Aortic Disease	*Dr. G. W. Balfour*	249
Atheromatous Disease of Arteries	*Dr. McCrorie*	249
Cardiac Asthenia following Influenza	*Dr. Burney Yeo*	250
Arsenic in Cardiac Pain	*Dr. S. C. Chew*	250
Malignant Endocarditis	*Dr. Taylor*	250
Mid-Systolic and Late Systolic Mitral Murmurs	*Dr. J. P. Crozer Griffith*	251
The Treatment of Asthma	*Dr. Dieulafoy*	252
The Treatment of Dyspnœa by Drugs	*Dr. Leech*	252
On Empyema: Method of Opening a Bad Case	*Mr. Godlee*	253
On Empyema: Site of Election for Incision	*Mr. Godlee*	254
Guaiacol in Pulmonary Tuberculosis	*Weill & Diamantberger*	254
On Intubation and Tracheotomy	*Prescott & Goldthwaite*	254
Creasote in Phthisis	*Dr. Beverley Robinson*	255
Hæmoptysis as a Cause of Phthisis	*Dr. Philip*	255
On the Treatment of Pleurisy	*Prof. Dujardin-Beaumetz*	255
Treatment of Pleurisy by Salicylic Preparations	*Dr. H. Köster*	256
On Cardiac Displacement in Pleuritic Effusion	*Langford Symes, Esq.*	256
Treatment of Pneumonia by Digitalis	*Dr. Rudolph Hoepfel*	257
On Tuberculous Empyæma and Pyopneumothorax	*Mr. Godlee*	257
Treatment of Tuberculous Laryngitis	*Dr. Gouguenheim*	257

SYNOPSIS.	AUTHOR.	PAGE.
Acute, Non-Enteric Enlargement of Solitary and Agminate Glands of the Intestine	*Drs. Smith and Parsons*	258
Catheterisation of Biliary Ducts	*Drs. Terrier and Dally*	258
On Ipecacuanha in Dysentery	*Dr. Hart*	258
On Dysentery	*Dr. A. Brayton Ball*	260
Treatment of Gastric Ulcer Hæmatemesis	*Dr. Dreschfeld*	260
Perforation in Gastric Ulcer	*Dr. Dreschfeld*	261
On Gastrostomy	*Dr. Senn*	261
Salicylate of Bismuth in Infantile Diarrhœa	*Dr. Mikhnevitch*	262
Cure of Inguinal Hernia by Bassini's Method	*Mr. Hulke*	262
Operative Treatment for Intussusception	*Mr. Hutchinson*	263
Jejuno-Gastrostomy for Pyloric Obstruction: Closure of Artificial Opening	*Mr. G. T. Hankins*	264
Incubation of Mumps	*Mr. Arthur Stedman*	265
On Pancreatic Cysts	*Dr. Krecke*	265
On Idiopathic Peritonitis	*Prof. Welch*	266
On Suppurative Peritonitis	*Dr. W. Körte*	266
Surgical Treatment of Perityphlitis	*Prof. Schede*	267
Cancer of the Tongue	*Dr. N. P. Dandridge*	268
Modification of Operation for Excision of Tongue	*Arbuthnot Lane, Esq.*	269
Tuberculous Ulceration of the Stomach	*Dr. J. H. Musser*	269
Auditory Disturbances in Bright's Disease	*Lancet, Paris Corres.*	270
Local Use of Corrosive Sublimate in Cystitis	*Dr. Guyon*	270
Diet in the Slighter Forms of Diabetes	*Dr. Wilhelm Ebstein*	271
Operative Treatment of Epispadias	*Dr. Rosenburger*	272
On Intermittent Hydronephrosis	*Drs. Terrier & Baudouin*	273
Etiology of Granular Kidney	*Dr. Eisenlohr*	273
Forms of Movable Kidney	*Henry Morris, Esq.*	274
Nephrorrhaphy and its After-Effects	*Dr. Tuffier*	274
Paraffin Cancer of the Scrotum	*H. Butler, Esq.*	275
Prevention of Scarlatinal Nephritis	*Dr. Zeigler*	276
Affections of Testis in Hereditary Syphilis	*Dr. George Carpenter*	276
Mineral Springs in the Treatment of Uric-Acid Gravel	*Sir Wm. Roberts*	277
Wyeth's Method of Amputation at the Hip-joint	*Prof. W. W. Keen*	278
Amputation in Diabetes	*W. G. Spencer, Esq.*	279
Arthrectomy for Disease of the Knee-joint	*W. Watson Cheyne, Esq.*	279
On Ganglion	*Dr. Evans*	280
Enucleation of Goitre	*Dr. Reverdin*	280
Treatment of Hip Disease and its Results	*Prof. Sayre*	281
Osteomyelitis of Streptococcus Infection	*Drs. Koplik & Arsdale*	282
Complications of Pott's Fracture	*Dr. Lewis A. Stimson*	282
Diagnosis of Pott's Fracture	*Dr. Lewis A. Stimson*	283
Treatment of Old Cases of Pott's Fracture	*Dr. Lewis A. Stimson*	285
The Nature of Rice Bodies in Compound Ganglion	*Dr. C. S. Evans*	285
New Treatment for Scoliosis	*Dr. Schede*	286
Tubercular Disease of Shoulder-joint	*MM. Mondan & Audrey*	286
Counter-irritation in Tuberculous Bone Disease	*W. Watson Cheyne, Esq.*	287

SYNOPSIS.	AUTHOR.	PAGE.
Treatment of Abscesses in Tuberculous Joint Disease	*W. Watson Cheyne, Esq.*	287
Use of Extension in Tuberculous Joint Disease	*W. Watson Cheyne, Esq.*	289
Treatment of Alopecia Areata	*Dr. L. Duncan Bulkley*	289
Treatment of Alopecia Areata	*Dr. P. A. Morrow*	290
Antimony in Skin Diseases	*Drs. Jamieson & Douglas*	290
Collem Plasters in Eczema	*Dr. Hans V. Hebra*	291
Treatment of Eczema	*Dr. Louis A. Duhring*	291
Naphthol in Skin Diseases	*Dr. C. W. Allen*	292
On Pasta Cerata	*Dr. Schleich*	293
The Treatment of Ringworm	*Dr. Alfred Eddowes*	293
The Treatment of Ringworm	*Dr. Phineas Abraham*	293
Treatment of Excessive Sweating	*The Practitioner*	294
Sycosis	*Dr. Kromayer*	294
Tumenol in Skin Diseases	*Dr. Neisser*	295
On Adenoid Vegetations	*Dr. Dessar*	295
On Aural Polypi	*Marmaduke Sheild, Esq.*	296
Management of Prolapse of the Iris after Cataract Extractions	*W. T. Cant, Esq.*	296
Deafness and Nasal Stenosis	*Bendelack Hewetson, Esq.*	296
Ectropion Treatment	*M. Panas*	297
Granular Lids	*Secker Walker, Esq.*	298
Hemorrhages into the Labyrinth in Consequence of Anæmia	*Dr. J. Habermann*	298
Operations upon the Mastoid Process	*Dr. Heiman*	299
Optic Neuritis after Influenza	*Simeon Snell, Esq.*	299
A New Boric Acid Preparation for Otitis Media	*Dr. Max Janicke*	300
Deafness Due to the Non-Purulent and Chronic Form of Otitis Media	*Dr. Gradenigo*	300
Otitis Media—the Necessity for Making a Complete Search for Pus, etc.	*H. Percy Dean, Esq.*	300
Optic Neuritis after Measles and Intermittent Fever	*Dr. Woods*	302
Treatment of Ozæna	*Dr. Tarbau*	302
Treatment of Ozæna	*Dr. Meijer*	302
Curetting the Tympanum	*Marmaduke Sheild, Esq.*	302
On Gonorrhœa	*Dr. Nicoll*	303
Treatment of Syphilis by Mercurials	*Prof. Eduard Lang*	303
Aristol for Venereal Ulcers	*Dr. T. Edmund Güntz*	304
Asafœtida in Abortion	*Dr. Turazza*	304
Anæsthetics in Gynæcology	*Dr. Dudley Buxton*	304
Backward Displacement of the Uterus and Prolonged Hemorrhage after Delivery and Abortion	*Dr. Herman*	305
Cæsarean Section in Placenta Prævia, etc.	*Dr. Galabin*	305
Method of Removal of Cancer of the Breast	*W. Watson Cheyne, Esq.*	305
Causes of Recurrence after Removal of Cancer of the Uterus	*Dr. Winter*	306

MEDICINE.

GENERAL MEDICINE AND THERAPEUTICS.

ARTICLE I.—ON THE TREATMENT OF FEVER BY THE EXTERNAL USE OF COLD WATER.

By GRAHAM STEELL, M.D., F.C.R.P., Physician to the Manchester Infirmary.

My introduction to the treatment of fever by the external application of water was in the London Fever Hospital, while I was Medical Registrar there in the winter, 1875–76; and the treatment was carried out by the Resident Medical Officer, the late lamented Dr. Mahomed, with all the energy and perseverance which were characteristic of him. For a time most of the cases of typhoid were treated antipyretically by means of the wet pack. The impression left on my mind by what I witnessed was that the persistent keeping down of the fever gave us very great powers in the direction of controlling the general processes of the disease; in fact, it almost seemed that we might in most cases of moderate severity, greatly shorten the illness, and in cases of much severity often save life by the treatment. With such impressions, I proceeded to the Leeds Fever Hospital, as Resident Medical Officer. In this hospital I had the most favourable opportunities for studying the antipyretic treatment of fever by means of the external application of water, but I used the bath instead of the wet pack. I had a bath on wheels, which I could have moved up to the bedside of the patient, and by means of a tap at the bottom of the bath, and hose, I was able to run off the water in the bath and add cold water, so as to regulate the temperature of the water in which the patient was immersed, precisely as I chose. I never placed a patient in a cold bath; in fact, with means of reducing the temperature of the water gradually at my disposal, there seemed no advantage in so doing. The patient was usually immersed at a temperature of 80° or 90°, and the water was cooled down as the resistance of the pyrexia seemed to demand. I had no hard and fast lines; I watched the condition of the patient from first to last, making my aim the reduction of the pyrexia, and acted as regards the rapidity and degree of cooling of the water and the duration of the bath simply as the circumstances of each case seemed to require. Every case was judged and treated on its individual merits. Anyone who will do this will soon find that the resistance which the pyrexia offers gives him a most excellent means of guaging the severity of the general disease. Resistance to treatment is shown not only by the degree of vigour of treatment required to effect reduction of temperature, but also by the rapidity of the return of pyrexia after treatment.

While in a case of moderate severity the reduction was easily accomplished, and the reduction was maintained for a considerable number of hours, the temperature rising only slowly, in a severe case, not only was

much difficulty experienced in reducing the pyrexia, but when reduction had been accomplished, almost as soon as the patient was removed from the bath his temperature again rose rapidly, and the bath had to be repeated in a few hours.

At the time I speak of, quinine was the only antipyretic drug in use, and I worked away with it both alone and in combination with the bathing treatment. I frequently gave ten grains every three hours during the day of twenty-four hours—eighty grains in twenty-four hours—and sometimes I gave single large doses of thirty or forty grains in the evening, as it is very important in the use of antipyretics "to go with the tide," so to speak—that is, to give them before there is a natural tendency to decline of temperature. It is much easier to increase a natural remission of temperature than to diminish a natural exacerbation of fever. I may be allowed a slight digression to state that I did not, as a rule, observe any injurious result from the use of these large doses of quinine. Two patients became comatose after taking ten grains every three hours for several days, but both ultimately recovered. Occasionally, after a time, vomiting set in, and the drug had to be discontinued. Once after keeping the temperature absolutely normal for a week by the administration of quinine only, in the middle of the fastigium of an exceptionally severe case of typhoid in a girl, vomiting set in, and I could not go on with the treatment. Immediately the temperature rose again, and became as high as ever. Ten days or so later, the fastigium having continued its severe course without sign of abatement, and vomiting having ceased soon after stoppage of the quinine treatment, I again resumed quinine, this time with apparently the happiest result, for normal defervescence very speedily set in.

Quinine formed a useful ally to the water treatment, and enabled me in severe cases to diminish the number of baths very considerably.

Now we have several antipyretic drugs, I may almost say many, but I doubt if we have any safer or, on the whole, more efficacious than the old-fashioned quinine. I ought to have said that in giving quinine in large doses, I seldom gave it in acid mixture, but usually as a powder. Whether or not we have now antipyretic drugs better than quinine matters l ttle, for I wish to affirm my belief that the laws which govern the treatment of fevers by the external application of cold also hold good, for the most part, with respect to treatment by the drugs which have, as their essential action, the reduction of pyrexia. In other words, we may truly speak of *antipyretic treatment* as a whole, whether such treatment be carried out by bathing or by drugs, or by a combination of the two. Be it always remembered, however, that in that condition which we term hyperpyrexia, and in which the heat-regulating centres lose control over the processes which they govern, all *drugs* are useless and cold bathing is the only treatment which can prove of any use.

It is a matter of regret to me to see the superseding of the water treatment by the drug treatment, although it cannot be wondered at. In private practice the practical difficulties in the way of carrying out the bath treatment efficiently are so great that it is a method of treatment only applicable in the houses of the rich. In Fever Hospitals, however, there is no such excuse, and every such hospital should be provided with all the apparatus necessary. It should never happen that drug treatment is preferred to water treatment simply for purposes of convenience. When human life is at stake there should be no consideration of trouble or expense. The discomfort to the patient occasioned by bathing is an excuse for the substitution of drugs which has some validity, but those

who have personally witnessed the wonderfully beneficial effects of the water treatment will be slow to think this last consideration a kindness. If the considerations of trouble and expense are prominently before the mind, it is easy to be persuaded that the patient's comfort warrants our inactivity. I only wish to emphasise that when antipyretic treatment is called for, the external application of cold is the most efficient way of conducting it. In many cases danger never threatens from the severity of the fever, and in such cases the utility of antipyretic treatment may well be questioned, but of this subject later.

On the other hand, in mild cases of typhoid, danger may arise from abdominal *accidents* quite apart from the course of the pyrexia. The "tendency to death" so arising of course must be combated by very different means from those which we use in the treatment of excessive pyrexia.—*The Medical Chronicle*, April, 1892, p. 11.

2.—ON THE CLINICAL USES OF EXALGINE.

By John Gordon, M.D., Assistant to the Professor of Materia Medica in the University of Aberdeen.

[The details of Dr. Gordon's cases are not reproduced.]

Exalgine exists in acicular crystals, only soluble with difficulty in water, but readily soluble in diluted or concentrated alcohol. Its taste is slightly bitter, leaving a sensation of numbness on the tongue. The following is a useful formula to prescribe it:—Exalgine, forty-eight grains; compound tincture of cardamoms, one ounce and a half; syrup of orange, one ounce; water to six ounces. A tablespoonful for a dose. For exalgine it was claimed that it was akin in its pain-relieving properties to antipyrin and antifebrin, but that its analgesic action was secured by a much smaller dose and without the marked antipyretic and diaphoretic effects of these drugs.

The diaphoretic action of these substances, especially that of antifebrin, was complained of by some patients. It was also maintained that, although the local pain was abolished in a short time after the exhibition of exalgine, tactile sensation was not interfered with; that, in fact, no visible change took place in the outward condition of the patient. It had thus a distinct advantage over many other anodynes, in so far that the patient need not be hindered from his ordinary duties while under the influence of the drug. Its action, since it does not diminish general sensibility, is supposed to take place in those parts of the sensory nervous system which have for their function the perception and conduction of painful impressions. In some cases it has been recorded that disagreeable symptoms were noticed following doses of three grains, or after doses of six grains and upwards. In these cases there appeared evidence of cerebral disturbance, such as a feeling of intoxication, dizziness, buzzing in the ears, also of nausea, vomiting, and headache. In the numerous cases on which this contribution is based nausea, with an inclination to vomit a short time after the dose had been taken, was met with only twice. One of these patients was taking thirty-six grains in twenty-four hours; the other had twenty-four grains in a like period. None of the other unpleasant symptoms which have been noticed were complained of by those who took the drug. The class of patients to whom, for the most part, exalgine was given, were those suffering from pain of the neuralgic type. The results obtained from this class of cases were distinctly satisfactory. All the patients to whom the drug was given were not cured; nor was the relief from the painful impression always permanent. But a large number showed a marked alleviation of pain in from half an hour to an hour or

two hours after the exhibition of the drug, and frequently a permanent relief was obtained. In cases of nervous headache, especially in females, the action of exalgine in removing the pain was as distinct as it was speedy. The analgesic action was more quickly obtained if the patient assisted the drug by rest in bed. But this condition was by no means imperative. Sick headaches were also controlled by its use. In cases of toothache, sciatica, lumbago, intercostal neuralgia, locomotor ataxy, and otitis media, its exhibition was followed by good results. It was employed in doses that varied from one grain to ten grains, as many as thirty-six grains having been given in twenty-four hours. The results from a number of the cases showed that the smaller doses—such as half, one, or two grains—have not markedly analgesic effects, but that when the doses were increased to four grains a distinctly more potent influence was manifested. Other cases, in which the pain yielded slowly to doses of four grains, were speedily cured by eight grains. The dose which has been most frequently given was four grains, repeated every four hours till the analgesic action was evident. It is stated that the toxic dose of exalgine is three grains for every two pounds of body weight.

Professor Fraser of Edinburgh, in his valuable and interesting clinical lecture, shows that he obtained marked analgesic action by doses of half a grain or a grain. But the larger doses of from four to six grains, as recommended by French observers, have given more satisfactory results to this writer; and it is interesting to notice in the recorded cases the relation between the dose and the time at which the pain was relieved.

Following the admirable plan of Professor Fraser, a table is drawn out in which the results of the various observations are summarised:

DISEASE.	NO. OF OBSERVATIONS.	SUCCESSFUL CASES.	UNSUCCESSFUL OR DOUBTFUL CASES.
Toothache	7	3	.....
Headaches	35	28	.....
Neuralgia (facial)	20	12	3
Sciatica	3	1	2
Lumbago	7	5	2
Intercostal neuralgia	3	3	.....
Locomotor ataxy	8	1	.....
Biliary calculi	2	.....	2
Rheumatoid arthritis	2	1	1
Otitis media	1	1	.....
Tubercular disease of prostate	4	.....	1
Totals	92	55	11

In all, records of ninety-two observations were kept, and sixty-six patients were treated with the drug. In fifty-five cases the action of exalgine was successful in relieving the pain, while eleven cases yielded results that were unsuccessful or doubtful. The benefit of exalgine was most marked in cases of nervous headache, facial neuralgia, intercostal neu-

ralgia, and lumbago. Although the pain-subduing action of the drug may be feeble, it has given in certain cases excellent results. Further observations will at last fix its full value as an analgesic, and possibly justify the hope that it may take a valuable, if restricted, place in the group of those bodies which relieve suffering.—*The Lancet*, May 28, 1892, p. 1173.

3.—ON EXALGINE IN GRAVES'S DISEASE, AND THE POISONOUS DOSE OF EXALGINE.

By THOMAS CHURTON, M.D., Physician to the Leeds Infirmary.

The poisonous dose of exalgine seems to vary greatly for different persons. A woman aged twenty-eight, of fair complexion, having typical Graves's disease, had, after some months, extreme exophthalmos and congestion of both conjunctivæ, with ulceration of the left cornea. Leeches, lotions, etc., gave very little relief. At length, the pain becoming severe, exalgine was tried, half a grain dissolved in five minims of spirits of wine, and a tablespoonful of water, every half hour for three times when pain was present. Next day not only was the patient free from pain, but the congestion had entirely disappeared; the eyes had changed from flaming red to perfectly white. During the next month, to satisfy myself and several critical observers as to the influence of exalgine, experiments were made; all the other drugs and appliances were tested in turn. The result was always the same: when exalgine was given, the eyes were white; when it was omitted, they became red and painful within a day, no matter what other drugs were given or lotions applied. As upon trial being made it seemed that the good effect was less marked when the whole dose of a grain and a half was given at one moment than when it was given in divided doses—half a grain every quarter of an hour for three times—it was ordered to be taken regularly in this manner every four hours from a bottle kept for the occasional use of other persons as well as of herself. By a mistake of the transcriber of an old and damaged label, "gr. i. in ℥ i." became "gr. i. in ℥ i." This prescription being dispensed, the mixture contained eighty grains in ten ounces—of this there is no doubt; inquiries and testing by comparative evaporations established the fact. On a Thursday, at 4.30 P. M., the patient had her ordinary dose of half a grain; a second dose at 4.45; at 5 the new mixture was begun. She merely remarked that this dose felt hot, but complained no further. This 4-grain dose was repeated at the following times:—Thursday, 10 P. M., 10.15 P. M., and 10.30 P. M., or twelve grains in all within half an hour. Friday, at 3 A. M. and 3.15 A. M. (she begged to be excused the third dose on account of pain and burning in the stomach); 7 A. M., 7.15 A. M., and the third dose after breakfast at 8.15 A. M.; at 1 P. M. one dose only; she declined the others on account of gastric pain; no other bad effect from forty grains of the drug given in twenty hours was observed. At 10 A. M. on Friday the complaint of pain led to the pulse being again counted, and it was found to be 144; it had never previously exceeded 136; its usual rate was between 100 and 120. Respiration rate 32 (above average). Temperature unaltered—98° to 99°. I saw the patient at 5 P. M. on this day (Friday), and suspected nothing until she complained of the pungent taste of the medicine and of the pain which it gave her. On the following day she felt much better in every way; the eyes were much less prominent, and the corneæ could now be covered by the eyelids. Pulse, 120; respiration, 26; morning temperature 98.4°; evening 99°.

Another woman having toothache, but otherwise healthy, had taken on

Thursday, at 5.15 P. M., an ounce of the mixture—that is, eight grains of exalgine; at 5.30 a second ounce, and at 5.45 a third, or twenty-four grains in half an hour. This woman is about twenty-eight years of age, 5 ft. 5 in. in height, 9 st. in weight, has very fair hair and complexion, is very intelligent, of quiet, pleasant disposition, has a large head with relatively rather small face, and grey eyes. She states that after the second dose she felt dazed, but even after the third she was able to go out to call upon a friend half a mile away, though walking unsteadily and with difficulty, and fearing to speak least she should say foolish things. On her return in an hour she felt giddy and stupid, but could do her work. On going to bed at 10 o'clock she instantly fell asleep; awoke at 7 A. M. on Friday with dry mouth and frontal headache; no toothache; was better after breakfast, but the mouth still felt dry on Saturday evening.

Of the quality of the exalgine used there is no doubt. It has been found effective in cases of neuralgia, headache (of probably) cerebellar glioma, "lightning" pains of tabes (two cases), gouty arthritis, etc. The patient with Graves's disease resumed the use of the drug after a week's interval, and for three days she had three grains every four hours; then, for a week, four grains and a half every four hours. After an interval of four days she took three grains in one dose every four hours for ten days; afterwards, as she could not be kept longer under daily observation, the quantity was reduced to three grains three times a day. The corneal ulcer healed, and the pain and congestion were held in check by these doses, which were given in the hope of hastening the improvement of the original disease; they effected little if anything apparently in this way, but no discomfort of any kind was caused by them. Exalgine does not seem to be in any sense a "cumulative" drug. I have, however, heard of a case in which very alarming symptoms were produced by a single dose of five grains.—*The Lancet*, May 28, 1892, p. 1175.

4.—ON THE DANGERS OF ANTIPYRETICS IN TYPHOID FEVER.

By J. H. Musser, M.D., Philadelphia.

The following remarks are addressed to practitioners who continue to use, and think they must use, antipyretic medicines, because the thermometer records high temperatures. I have never used such means to reduce temperature in typhoid fever, but I wish to particularly impress upon those who will use antifebrile drugs that it is at times essential they should withhold their hands. The present intemperance in the use of antipyretics is due to laudation in the past of this class of drugs by eminent therapeutists.

Now, in regard to the danger of the use of antipyretics in certain cases of typhoid fever. There are three periods in the course of typhoid fever when, without doubt, the use of antipyretics is dangerous, and these must be carefully considered: First, in the early or middle peroid of cases that come to us after removal from a distance. Sir William Jenner was the first to lay great stress upon the danger of the removal of a patient suffering with typhoid fever. Anyone that observes cases in the medical ward of a hospital will notice that the temperature for the first twenty-four hours after admission is unusally high—that is, higher than one would expect at the period that the disease has reached. This rise of temperature is undoubtedly due to the exhaustion that has taken place on account of the removal to the institution. I have seen this so often and made so many observations in connection with it that I hesitate to use any antipyretic

during the first twenty-four hours after admission. The records that I have bear out the correctness of this course. Even if no antipyretic is given, the temperature usually falls to the proper point in twenty-four hours. Sometimes stimulants are required, and under their use the temperature falls. On the other hand, I have seen cases admitted with a temperature of 105° or 105.5°, in which an antipyretic was given with serious results. I am so sure of the inadvisability of administering an antipyretic under these circumstances that I direct that no antipyretic be given during the first twenty-four hours after admission, but that stimulants shall be administered.

Again, there are certain cases in which peculiar idiosyncrasies exist, in which it is inadmissible to use antipyretics during the course of typhoid fever, no matter how high the temperature may be, if life is not threatened. I remember one such case among a number of others. We have all seen patients that were particularly susceptible to drugs, to the application of external cold, to any kind of stimulant, and to opiates or alcohol in any form. The case that I have in mind is that of a young woman who was in the private ward of the Presbyterian Hospital, with typhoid fever running a regular course, but with excessively high temperature. It was impossible to administer any antipyretic. She was extraordinarily susceptible to quinine, one grain producing serious nervous symptoms. The use of alcohol caused increased headache and violent nervous symptoms. The external application of cold and the external use of alcohol or other refrigerants produced shivering and great depression. Without my concurrence, five grains of antipyrin on one occasion were administered with such serious collapse that for five hours it required the efforts of three of the *internes* to restore the patient to her natural temperature, and, in fact, to save her life. It was the most extraordinary degree of depression that I have seen from a single administration of the drug. This is an example of a number of cases in which it is impossible to administer antipyretics, as a result of peculiarities of individual constitution. I think that physicians who are constantly calling attention to the use of antipyretics neglect to look for these peculiarities, which I think are present in many cases. I have now under observation an individual of highly nervous temperament, to whom I would not administer an antipyretic unless life was absolutely threatened.

It is in the latter stages of typhoid fever that I think antipyretics are especially dangerous, and must be administered with the greatest care. Two classes of such cases are worthy of attention. There is one class in which the temperature persistently remains at the maximum, but there is abatement of all of the other symptoms—lessening of the diarrhœa, cleaning of the tongue, diminution of the delirium, and even lowering of the pulse, with increase of strength. We feel that the typhoid process is ended, but the fever, nevertheless, continues high. I will illustrate this with brief reports of two cases.

In the first case, in a lad ten years of age, whom I attended during the course of an attack of typhoid fever, from the fifteenth to the eighteenth day of the disease the temperature ranged between 104° and 105.5°. The tongue had cleaned, the number of stools had lessened and these were gradually becoming formed, and I felt that the pathologic process was at an end, and that if we waited a little while the fever would probably subside. There were no dangerous symptoms except the high fever. At 10 o'clock on the evening of the eighteenth day the temperature was 105°; it then began to fall until at 6 o'clock in the morning, it was just below 96°; it required all the efforts of the father and the nurse to prevent what they

thought to be a fatal collapse. The temperature remained below 96° for an hour, then began to rise, and by 9 o'clock in the evening it was 104°. It remained at about this point for two hours, and then gradually fell until in the morning it was 96.5°. It then rose again, to be followed by another fall, but not to such a low point. There is no way in which this fall in temperature could have been anticipated. If we had applied external cold or administered an internal antipyretic, I am quite sure that the collapse that occurred naturally would have been a fatal one. This sudden fall often occurs in typhoid fever in children, and it is one of the ways in which the fever subsides, the disease terminating by crisis.

In the second case—that of a young man, seventeen years of age, who was treated in the private wards of the University Hospital a year ago, and who had a prolonged and severe attack of typhoid fever, the temperature keeping high—without warning or cause a "nervous chill" occurred, followed by a fall in the temperature from 104.4° to 95.5°, the thermometer rising again to its former level. The temperature kept thus for five or six days, and then gradually fell. I know of no way in which the fall of temperature could have been anticipated. Before it occurred we were much tempted to use some active means to reduce the temperature, but, had this been done, it might have been serious for the patient.

I recently treated with turpentine, in the Presbyterian Hospital, a case of typhoid fever in a man twenty-six years of age, in whom the disease ran a perfectly normal cause. While grave, the symptoms were not alarming, and the temperature ranged between 103° and 104°. At one of my visits I found a falling temperature, which continued until the mercury registered 96.5°. being followed by a gradual rise, with a subsequent decline by lysis. This is another case in which no one could have anticipated the fall of temperature, which, I am sure, was a part of the disease, and not due to any cause that would produce collapse.

These three cases are examples that I have taken at random from an abundance of typhoid fever notes, in which the administration of an antipyretic in the latter stages of the disease would have been dangerous.

Of course there is still another class of cases in which it would be dangerous to administer an antipyretic, those, viz., to which Dr. Da Costa has particularly called attention, in which the morbid process has terminated, but—on account of the exhaustion, or the long continuance in bed, or the limited diet—the temperature keeps up, or even begins to rise. Such a case was under my care last year. These have been spoken of as cases of bed-fever, and in such instances the administration of an antipyretic would not have the desired result. In these cases the fever is due to exhaustion, lack of food, and long continuance in bed. The use of stimulants, solid food, and getting the patient out of bed, bring back the temperature to the normal.

The foregoing are the classes of cases to which I wished particularly to call attention in connection with the dangers of antipyretics in typhoid fever.—*Medical News*, April 23, 1892, p. 458.

5.—ON GOUT AND THE MODE IN WHICH URIC ACID PRODUCES ITS INJURIOUS EFFECTS.

By Sir William Roberts, M.D., F.R.S.

The Mode in which Uric Acid Produces its Injurious Effects.—A problem of great interest in regard to the elucidation of gouty manifestations is the mode or modes in which uric acid produces its injurious effects.

The main question is, whether these effects are exclusively due to the mechanical damage consequent on its precipitation as sodium biurate in the tissues, or whether, in addition, uric acid circulating in the blood in a state of solution is capable of acting as a true poison.

With regard to the incidents of regular gout, the mechanical theory seems to offer a natural and complete explanation. The crystalline urates precipitated in the cartilaginous and fibrous structures of the joints necessarily act as foreign bodies; they excite irritation, clog the lymph channels, exercise pressure on the tissue elements and impede their nutritive operations. These effects sufficiently account for the inflammation, pain, and swelling which ensue, and explain the remoter degenerative changes which follow after. Nor need we look beyond physical conditions to account for the diversity witnessed in the local manifestations. It is easy to understand that depositions occurring within the tense, unyielding structures of the joints would produce widely different results from similar depositions in the loose subcutaneous tissue or in the rim of the ear. It is equally easy to understand that the suddenness or slowness of the precipitation, its copiousness or scantiness, would necessarily cause great variation in the intensity and character of the local disturbance. So easy and natural is this explanation that we might even predicate, from our general knowledge of pathological cause and effect, that if similar depositions of crystals of carbonate of lime, or of any other inert substance, were to take place in the same localities, there would follow very much the same train of morbid sequences as are witnessed in connection with uratic precipitations.

It is in the explanation of the phenomena of irregular gout that the mechanical theory of the action of uric acid seems inadequate; and it is to meet this lack that the theory of a poisonous action has been set up and is invoked. The visceral disturbances and manifold neuroses which trouble the gouty have not yet been anatomically traced to uratic precipitation; and there seemed no other way of explaining their occurrence, if they were to be linked with uric acid at all, except by assuming that uric acid was possessed of toxic properties. The acceptance of this view appears to me on several grounds to be extremely difficult. There is first the complete absence of direct experimental proof. Animals have been made to ingest large quantities of uric acid with their food, and urates in solution have been freely injected into their veins without eliciting any signs of poisoning. In the next place, the idea that uric acid is poisonous seems opposed to broad biological analogies. Uric acid is the physiological homologue of urea; each of these bodies constitutes in its separate domain the final term of nitrogenous metabolism. Now, it cannot be said, without an abuse of terms, that urea is a poisonous substance, and it would be strange if its homologue, uric acid, differed from it in so important a particular as the possession of toxic properties.

The theory appears not less improbable when examined from a nearer point of view. The system of the gouty man is at times surcharged with uric acid. On the eve of an outbreak, the fluids of his body, in parts at least, must be impregnated with biurates to saturation, for, of course, no precipitation can occur until this point is reached. Yet, with fluids saturated with urates, such persons often betray not the slightest sign of poisoning, and enjoy complete immunity from symptoms of every kind until overtaken, unwarned, by the sudden precipitation which provokes the arthritic attack.

Again, the manifestations of irregular gout are so extremely diverse in seat and character, that it is hard to believe that they can be produced by

one and the same toxic agent. Sometimes they implicate the stomach, sometimes the liver or heart or lungs, and oftenest of all the nervous system. This diversity is, however, easily explicable on the supposition that the disturbances are caused, not by uric acid in a state of solution acting as a poison, but are really due to actual precipitation of crystals of biurate into the connective and fibrous structures of the implicated organs, or into the fibrous sheaths of the nerves which control their functions.

Observations at the bedside and in the dead room lead to the inference that uratic precipitation is very variable in its mode of incidence. In certain conditions the crystals would seem to descend in sudden and copious showers, which provoke a sharp inflammatory reaction, as in the regular arthritic seizures. In other conditions the crystals would seem to fall in gentle sprinklings sufficient perhaps to excite irritation if the implicated tissue be a sensitive one, but not enough to cause downright inflammation. The peculiar pricking pains in the joints, which some gouty persons invariably experience after partaking of certain wines, are highly suggestive of the occurrence of these slighter precipitations. Now if these slighter precipitations, instead of falling on the joints, fell upon the membranes of the brain or upon the fibrous sheaths of the nerve roots, this would, I submit, afford an adequate explanation of the phenomena of irregular gout. Of course, it may be objected that no such slight precipitations have actually been found. But have they been looked for? Has the microscope been used in the investigation? In prosecuting such a search it would have to be borne in mind that the precipitations would be apt to be fugitive, and that negative results would have to be interpreted with caution. For it is obvious, in the case supposed, that when the stress of saturation of the fluids with urates was relaxed, and the blood again recovered its power of dissolving these compounds, these slight deposits would be speedily removed by re-solution, and not a trace of them might remain at the necropsy.

We scarcely realise how imminent a slight, but widespread, precipitation of the crystalline biurate must not infrequently be in the gouty system. It has been shown by me elsewhere that when the serum of the blood is impregnated with sodium biurate to the extent of one part in 6,000, supersaturation is attained, and precipitation is then, of course, imminent. It was also pointed out that Sir A. Garrod had proved by quantitative analysis that the blood serum of the gouty man is sometimes actually impregnated with uric acid to this extent. These two facts taken together indicate that the explanation here suggested of the phenomena of irregular gout stands on a strong basis of *a priori* probability, and thus dispenses with the necessity of assuming that uric acid and its compounds are endowed with poisonous qualities.

This mode of viewing the subject enables us to bring the diverse morbid effects of uric acid into uniform line. Uric acid and its compound are deleterious simply because of their sparing solubility in the bodily media. It may be said that the final cause of uric acid gravel is the sparing solubility of free uric acid in urine, and, in like manner, it may be said that the final cause of gouty precipitations is the sparing solubility of sodium biurate in blood serum, lymph, and synovia.—*The British Medical Journal*, July 9, 1892, p. 63.

6.—ON THE DIET AND REGIMEN OF GOUT.

By Sir William Roberts, M.D., F.R.S.

Restricting the Production of Uric Acid.—It has been shown that one of the main factors in determining uratic precipitation is the percentage of urates in the medium. Other things being equal, the larger the proportion of urates present the earlier and more abundant is the deposition of the crystalline biurate. Our power of controlling this factor lies almost entirely in the direction of regulating the diet. Numerous experiments have been made on the effect of diverse kinds of food on the production and excretion of uric acid. The chief point of therapeutical interest that has been clearly made out is this, that the ingestion of large quantities of proteid matter is attended with an increased production of uric acid and *vice versa*. It does not appear clear that proteid substances derived from the animal kingdom differ in this respect from those derived from the vegetable kingdom. But inasmuch as the commonly used articles of food of animal origin, such as butcher's meat, poultry, game, fish, eggs, and cheese, are richer in proteid stuff than the commonly used articles of vegetable origin, such as bread, oatmeal, rice, potatoes, and garden products, it is true that a vegetable diet is less productive of uric acid than an animal diet. The most trustworthy experiments indicate that fat, starch, and sugar, have not the least direct influence on the production of uric acid; but as the free consumption of these articles naturally operates to restrict the intake of nitrogenous food, their use has indirectly the effect of diminishing the average production of uric acid. There may be, and indeed undoubtedly are, other differences between animal and vegetable articles of food, and between one article and another of the same class, which are highly important. They differ considerably among themselves in their digestibility, and in their stimulating qualities, but in regard to the point under review, namely their direct influence on the production of uric acid, articles of diet must, as far as our present knowledge goes, be classified according to the percentage of albuminoid matters contained in them. As a rough guide in the choice of food for the gouty, the subjoined table may prove useful.

Table showing the average percentage of albuminoid matters contained in diverse articles of food:

Animal Food.	Albuminoid Matters.
Butcher's meat	19 per cent.
Fowl	20 "
Game	22 "
Fish	18 "
Egg	13 "
Milk	4 "
Cheese	30 "
Vegetable Food.	
Bread	8 "
Oatmeal	12 "
Rice	6 "
Green peas	6 "
Potatoes	2 "
Carrots and turnips	1 to 2 "
Green vegetables and salads	1 to 2 "
Fresh fruit (excluding nuts)	0.5 to 1 "

In choosing a diet for persons who are disposed to uratic precipitations, regard must, of course, be had to the whole condition, and especially to peculiarities of the individual. Nowhere, perhaps, is it more necessary than in gout to consider the man as well as the ailment, and very often more the man than the ailment; but the general rule in reference to the point under notice is, I think, pretty clear. Gouty people should be advised to partake cautiously of butcher's meat, fowl, game, and cheese, and to partake as freely as their digestion will permit of bread, rice, garden vegetables, salads, and fruits. The advantage to be gained from an adjustment of the dietary on these lines may be inconsiderable or even unappreciable in cases of inveterate gout, but it may be of critical moment in the slighter cases. A diminution of 1 or 2 grains per day in the amount of uric acid thrown into the circulation may make all the difference between the occurrence or non-occurrence of an arthritic attack.

The use of alcoholic beverages, as constituting an important feature in our dietic habits, may here claim a word of comment. The most reliable researches indicate that these beverages, in their legitimate use, exercise no appreciable influence either way on the quantity of uric acid produced in the body. It was, moreover, found in my laboratory experiments that the addition to the medium of small quantities—such as might conceivably reach the circulation—of spirits, wines, or malt liquors, had not the slightest effect on the solubility of sodium biurate, nor any influence in accelerating or retarding the precipitation of the biurate in blood serum impregnated with uric acid. The special and highly-important part played by certain classes of alcoholic beverages in fostering a proclivity to uratic depositions, is evidently of a very subtle and complex character, and has apparently no direct reference to the chemical problems here discussed.

The Use of Culinary Salt.—I have shown by experiment that the solubility of sodium biurate is conspicuously influenced by the proportion of sodium salts in the medium. I observed, moreover, in my experiments on the maturation of blood serum impregnated with uric acid, that the addition to the medium of small quantities of sodium chloride (0.1 per cent. or even less), always appreciably hastened the precipitation of the crystalline biurate. It has also been shown that the topographical distribution of uratic deposits through the body bears a close and striking relation to the percentage of sodium salts contained in the several organs and tissues. Indeed, it might apparently be said with truth that if we possessed the power of regulating the dosage of sodium salts in the fluids and tissues, we should be able effectively to control the occurrence of uratic depositions. Our power in this respect is, however, limited. Sodium salts belong to the physiological constants of the blood, and their proportion therein can only be modified within a comparatively narrow range. These remarks apply especially to the most abundant of them—the sodium chloride. It has been found in experiments on animals that when common salt is given in excess with the food, or injected into the veins, the surplus is for the most part quickly removed by the kidneys, and there is only a small and transient increase of its percentage in the blood. And, conversely, when animals are fed with food abnormally poor in salt there is only a slight falling off in its proportion in the blood, while it almost disappears from the urine. The blood clings with great tenacity to its proper percentage of sodium chloride, and the experimental evidence indicates that in case of a threatened salt famine within the economy the blood has the faculty of supplying its necessities by extracting salt from the less vital fluids and tissues, and contrariwise, in case of a glut of salt in the blood, the overplus is temporarily passed over into the serous cavities until such time as the kidneys

have succeeded in restoring the normal equilibrium. All this leads to the inference that by lessening the intake of salt with the food we should abate its proportion in the blood only to a slight degree, but should diminish its proportion in the synovial fluids and fibrous tissues considerably. Acting on these ideas, I have been in the habit for some years past of directing gouty patients to restrict, as far as practicable, the use of common salt with their meals.—*The British Medical Journal*, July 9, 1892, p. 63.

8.—ON THE USE OF MEDICINAL SUBSTANCES IN GOUT.

By Sir William Roberts, M.D., F.R.S.

In forecasting the possible effects of medicinal substances given internally in the treatment of gout, it is well to realise fully the actual conditions of the problem. These are widely different from those presented to us in urinary gravel. In the latter case the daily dose is designed to form an addition to a comparatively small bulk of fluid, namely, to the 40 or 50 ounces which constitute the diurnal discharge of urine. In the case of gout we are seeking to make an impression on a much larger bulk of fluid, namely, on the totality of the blood, lymph, and synovia—a quantity in a man of average weight certainly not less than 20 lbs. Consequently the effect of our dose must be proportionately less. Moreover the urine is a dead excretion, it takes and keeps what is cast into it and has no power of self-purification. The blood, on the other hand, is a living stream with high powers of self-adjustment to a normal standard. A practical dose of an alkaline carbonate enables us to alter the urine radically, to change its reaction from acid to alkaline, and thereby to exercise a decisive therapeutical effect in uric acid gravel. But the same dose only produces a feeble and transient effect on the mass of the blood and lymph, the blood passes on the surplus alkali with all speed through the kidneys into the urine, and quickly reattains its proper physiological standard of alkalescence.

The medicinal agents which have been chiefly employed in the treatment of gout, with a view of controlling the tendency to uratic precipitation are the carbonates and phosphates of potash and soda, the carbonate of lithia, piperazine, and the waters of mineral springs—and it is to these alone that I propose to call attention.

Alkalies.—Alkaline substances are largely employed in the treatment of gout, both as pharmaceutical preparations and as components of mineral springs. It is believed that the alkaline carbonates and phosphates administered internally by increasing the alkalescence of the blood enhance its solvent power on the material of gouty deposits, and thereby delay or prevent their formation. Experimental evidence entirely destroys this hypothesis. It has been conclusively proved that alkalescence, as such, has no influence whatever on the solubility of sodium biurate. It has, moreover, been shown that the addition of an alkaline carbonate to blood serum impregnated with uric acid produces no appreciable effect on the process of maturation and the advent of precipitation of the crystalline biurate in the medium. The use of alkalies in gout has been advocated on another ground. It is held, in a vague sort of way, that there is an undue prevalence of acid in the gouty system, and that the blood is less alkaline than it should be. In some quarters it is even believed that this is the primary vice of the gouty state, and that there exists a so-called "acid dyscrasia" which dominates the whole condition. I have been at some pains to ascertain what foundation there is for this belief; I have found very little of any kind and none that is really valid. In the numerous examinations of the blood in gouty

subjects made by Sir Alfred Garrod, the serum was invariably found to be alkaline, never acid or even neutral. But he remarks that there is often (not always) a marked alteration in the degree of its alkalinity, and that in cases of chronic gout the serum sometimes shows a near approach to neutrality. It is, however, obvious that observations on the alkalinity of the blood have no validity in regard to the point under consideration, unless they are made on cases of gout pure and simple. Gout is often complicated, not only with pyrexia, but with serious secondary lesions in the kidneys and joints which lead to a profound cachexia. These secondary lesions bring with them blood changes of their own, which are only remotely connected with the primary disorder, and have no bearing on the etiology of uratic precipitation. In the last few years some exact quantitative measurements have been made of the alkalinity of the blood both in health and in disease. These researches indicate that a diminished alkalescence of the blood is a common pathological deviation, and that it occurs in a variety of conditions which have no special relation to gout, namely, in pyrexia, in diabetes, carcinoma, acute rheumatism, anæmia, leukæmia, and apparently in every kind of general cachexia. These facts and considerations suffice to show that in the present state of our knowledge the belief in an acid dyscrasia in gout rests on a pure assumption.

Carbonate of Lithia and Piperazine.—These two substances have been introduced into the treatment of gout expressly on chemical grounds. Solutions of these substances possess a high solvent power on free uric acid, and it has been inferred from this fact that their administration internally might exercise a favouring influence on the solubility of sodium biurate in the bodily fluids, and thereby tend to prevent the formation of uratic depositions. This inference does not, however, appear to be justified. I have found experimentally that the addition of carbonate of lithia or piperazine in the proportion of 0.1 per cent. and 0.2 per cent. to blood serum or synovia had not the slightest effect in enhancing the solvent power of these media on sodium biurate, nor the slightest effect in retarding its precipitation from serum and synovia artificially impregnated with uric acid. If these bodies have any beneficial action in gout, it is I think certainly not due, as has been supposed, to their solvent action on the material of gouty concretions.

Mineral Springs.—The bearing of the inquiry on the use of mineral waters is, I think, of important practical interest. A considerable number of the springs to which gouty patients resort are strongly impregnated with the salts of soda. Now it has been conclusively shown that all the salts of soda act adversely on the solubility of sodium biurate and hasten its precipitation, and it may be inferred that the introduction of these salts into the circulation must tend to favour the occurrence of uratic depositions in the body. It is not therefore surprising to learn that, not infrequently, the first effects of these waters on a gouty patient is either to provoke a downright attack of gout or to aggravate the symptoms under which he was suffering. This event is now recognised by the physicians practising at these spas as a thing to be looked for, and experience has taught them the necessity of caution in regard to the quantity of the waters to be taken by new-comers. They comfort themselves and their patients, however, in the belief that this preliminary storm is a necessary prelude to the calm amendment which is to follow. There is no doubt some foundation for this idea. It is no fiction that a gouty man, tormented with symptoms of irregular gout, is relieved by a regular arthritic attack. I presume that this arises from the complete, or approximately complete, precipitation of the urates floating in his blood and lymph into the structures of the joints. The urates are thereby as effectually removed from

the vital fluids as if they were eliminated by the kidneys. But it must, I think, be allowed that this is a rough mode of cure, and that it brings with it serious pains and perils of its own. My impression is that gouty persons should either entirely avoid springs which owe their activity to sodium salts, or should use them very sparingly. It is difficult to believe that they can do any direct good, and easy to believe that they can do direct harm. If they do any good at all it must be indirectly, by acting on the liver and the intestinal tract; and we possess other means of effecting this purpose without inducing any collateral risk.

There are, however, other springs of high and growing repute in the treatment of gout which are not open to these objections. These springs contain no soda, or only traces, and the sum of their mineral constituents does not exceed that which is often present in ordinary potable waters; they contain for their chief component a little carbonate or sulphate of lime, and it is very doubtful whether the whole of this is absorbed into the blood; most of it probably passes out inertly with the fæces. In fact, springs of this class may practically be considered as equivalent to ordinary drinking water, except that several of them have the advantage of being thermal. Among springs of this kind may be mentioned, in our own country, the waters of Buxton, Bath, and Strathpeffer; in Germany the waters of Gastein, Wildbad, Pfeffers, and the Sauerling spring at Carlsbad; in France the waters of Aix-les-Bains, Contrexéville, Vittel, and Barèges. Now there can be no reasonable doubt that the efficacy of these springs has nothing to do with their scanty mineral ingredients, but depends on their watery constituent. They are drunk freely, and on an empty stomach. Their action would be to dilute the blood temporarily, and lower its percentage of urates and sodium salts. This effect would tend to retard or prevent uratic precipitation, and thus give the defective kidneys additional time to overtake their arrears in eliminating uric acid.

It may be asked whether the drinking of water at home would not answer as well as resorting to a mineral spring. The inference from my experiments is that, other things being equal, the beneficial results would be the same; but the "other things" never are equal. It would scarcely be practicable for a man going about his usual business to drink eight or ten tumblers of water on an empty stomach every day for two or three weeks. At a watering-place the visitor has nothing so do except to attend to his "cure." Moreover, in getting away from home, he leaves behind him the worries of his daily life, and experiences the advantage of change of air and scene, with a salutary modification of diet, and he has abundant leisure for outdoor exercise. All these collateral influences help to raise the general level of health and quicken the action of the secretory cells. I do not think, therefore, that we can forego the advantages of the time-honoured practice of a visit to a mineral spring. At the same time, a word may be said in favor of a more systematic use of water in every-day life of the gouty. I have observed that some gouty persons are very sparing in their use of diluents; such persons should be encouraged to be habitually more liberal in this respect. In a few cases it might even be possible to imitate with plain water the regular two or three weeks' course at the spa, and to repeat this course twice or thrice a year as a prophylactic measure.

I may observe that in scarcely any complaint is there more need of caution in judging the effects of remedies than in gout. The incidents of the gouty diathesis exhibit a waviness—a flux and reflux—which is highly characteristic. There is a natural tendency for the periods of aggravation to be followed by periods of amendment, and it requires a good deal of sobriety of mind to avoid being made the dupes of our own preconceptions.—*The British Medical Journal*, July 9, 1892, p. 64.

8.—A CASE OF MYXŒDEMA TREATED BY SUBCUTANEOUS INJECTIONS OF AN EXTRACT OF SHEEP'S THYROID.

By Alex. Napier, M.D., Physician to the Victoria Infirmary.

The patient, Mrs. G., is fifty-four years of age. She has been disposed to stoutness for many years, but dates her present excessive size, and indeed her present illness, from the period of the menopause, five years ago, since which time her symptoms have been gradually developing. She was admitted on May 3, 1892, complaining chiefly of pain in the back, vertigo, weakness in the legs, and inability to walk. The notes in the Ward Journal state that the swelling of the body has been increasing gradually for the past five years, but has been much worse during the last twelve months. With the swelling there has been pain in the back, thighs, legs, and feet; indeed, patient says that, especially on slight exertion, she often feels as if she had been beaten all over the body. She feels cold—the feet and legs are usually cold, and often numb. She has long been a

Fig. 1.

very bad walker, the legs feeling weak and stiff. Her memory and intellect have become much impaired. She is very lachrymose, and easily affected by trifles. She has vertigo on standing. There is no headache, sickness, or shortness of breath.

On admission, patient's great bulk was at once noticeable; at first sight her appearance was that of a dropsical person, but the skin and subcutaneous tissues were universally elastic as well as thickened, and there was nowhere any pitting on pressure. The face was rough, broader than natural; the nose, eyelids, and lips much thickened. The skin of the face was yellow, with a bright red patch on each cheek, and deep red lips. Perspiration absent or deficient; skin dry, harsh, and scaly. Hands "spade-shaped," and hands, feet, and legs cold and livid. The three outer

fingers of right hand were constantly painful, numb, and tingling. Tongue large, flabby, and thick.

Patient was remarkably sluggish in thought and in movement; when addressed she often did not reply for a little time, then passed her hand in a wearied fashion over her eyes and forehead, and replied in as few words as possible, speaking slowly and languidly, and with a somewhat "thick" articulation; after a little talking she complained of her jaw being tired. Movements of body and limbs slow, and accomplished with obvious effort. When asked to rise from a chair and walk (which she could scarcely accomplish without assistance), it evidently cost her considerable thought, and not a little muscular exertion, to do so, and a very little exercise tired her. Sensation and reflexes not impaired. Slight V.S. murmur heard at apex of heart; lungs, spleen, and liver normal. Weight, 14 st. 7 lb.; blood contained 65 per cent. only of the normal proportion of hæmoglobin.

FIG. 2.

May 12th.—One gramme of a watery extract of sheep's thyroid was to-day injected into the subcutaneous tissues between the shoulder-blades. A Koch's syringe, carefully disinfected, was used. The extract was prepared as follows: The gland was obtained fresh as soon as possible after the sheep was killed; with a sterilised knife, etc., it was separated from its capsule and all adherent connective and adipose tissues; it was then cut into small pieces on a plate sterilised by washing with boiling water after a previous washing with a 1 to 20 carbolic acid solution; the pieces were put into a sterilised test-tube with a fluid composed of equal parts of glycerine and .5 per cent. carbolic solution; by simply covering the pieces with fluid, enough extract was obtained; a plug of cotton wadding was then inserted into the tube, which was set aside for twenty-four hours; the whole was then wrung through a piece of sterilised muslin into a

sterilised glass-stoppered bottle. The extract was pinkish in colour, and turbid; it provided fluid enough for three injections, and was quite fresh and free from micro-organisms at the end of a week. May 13th.—No local reaction at seat of puncture; injection repeated. May 16th.—Patient states spontaneously that her skin, especially that of the forearms, is looser and softer, and this impression is readily corroborated by independent observation. May 18th.—Patient had an injection of the usual kind and quantity yesterday morning. To-night she complains of headache; temperature has gone up, the tongue is coated, the breath offensive, and the bowels are costive. There is some induration, redness and tenderness at seat of last puncture. Injection fluid examined, and found apparently free from micro-organisms. Patient directed to have a calomel and jalap purge, while belladonna was applied to painful part. May 19th.—Patient feels better, though bowels have not moved, and the tongue is still foul. Still some pain and tenderness at seat of injection. Calomel and jalap repeated; patient ordered 5 grs. of quinine three times a day. May 20th.—Bowels have acted freely, and patient is in all respects much better. Redness between shoulders has faded, and tenderness has almost gone; inflammation obviously resolving; temperature down. May 21st.—Quinine stopped on account of noises in head. May 22nd.—Blood still contains only 65 per cent. of normal proportion of hæmoglobin. May 25th.—On the skin between the shoulders are several nodules at the sites of former injections; these are slightly tender, but they are not red; they are resolving, and none so far as suppurated. Patient's aspect has undergone a very striking change. The heavy lethargic condition has given place to one of brightness and activity. Patient answers questions smartly, speaks quickly and freely, and states that she has not for a long time felt so well as now. The skin is everywhere much looser and softer, the quasi-œdematous condition having almost entirely disappeared. Surface still dry and harsh. May 29th.—Patient to-day volunteers the statement that she can stand and walk much better. June 11th.—Yesterday and to-day patient complains of much pain and tenderness at site of last injection, that given on June 8th; the part is swollen and red. June 12th.—Small abscess incised and evacuated; this is situated over lower ribs on right side, just below angle of scapula. Patient states that since this abscess formed, all pain and tingling have disappeared from fingers of right hand. June 20th.—Acetate of iron mixture ordered. June 25th.—Injection given yesterday (the last administered to this patient) caused a very rapid rise of temperature, headache, and general malaise, but no local reaction. June 28th.—Temperature normal. No disturbance locally. July 5th.—Bowels costive. Patient ordered a tonic containing strychnine, dilute hydrochloric acid, and cascara sagrada. Weight, 12 st. 10 lb.—a diminution of 1 st. 11 lb. as compared with weight on admission. July 10th.—Weight, 13 st. July 11th.—Dismissed much improved.

Remarks.—Many of the most characteristic features of this case can be seen in the photographs which accompany these notes. Fig. 1 was taken before treatment was begun; it shows well the heavy, torpid, apathetic condition of the patient; the thick, broad, coarse, and swollen features; the full and puffed supra-clavicular spaces; and the thick, spade-like hands. Fig. 2 was taken the day before patient left hospital. It shows well the remarkable change which took place in the patient's expression, the lethargic appearance having given place to one of brightness and alertness. The diminution in the thickening and broadening of the features, the diminished size of the hands, the restored normal outline of the neck and shoulder, are all well seen. The temperature was sub-

normal before treatment was begun and when it was intermitted and finally stopped. An invariable and sometimes considerable rise of temperature followed the injections, of which sixteen in all were given. On 1st and 2nd June baths were given, an attempt being then made to combine hot baths and massage with the treatment by injections, but this was given up.

There can be no reasonable doubt that in this case improvement most marked and manifest followed immediately on the adoption of treatment by injections of thyroid extract, and I should be disposed to return to this mode of treatment in dealing with another case of this hitherto rather intractable affection.—*The Glasgow Medical Journal*, September, 1892, p. 161.

9.—ON THE TREATMENT OF MYXŒDEMA WITH THYROID JUICE.

By G. R. Murray, M.D., M.R.C.P., Pathologist to the Hospital for Sick Children, Newcastle-on-Tyne.

In health the thyroid gland plays an important part in keeping the blood in a normal condition and in maintaining the natural metabolism of the tissues. This is shown by the changes which take place when it is lost and myxœdema comes on. This function of the thyroid gland is probably carried on to a considerable extent by means of its secretion, which is carried into the blood.

If this really be so, we ought to be able in a case of myxœdema to remove those symptoms which are due to the loss of this secretion only, by introducing the secretion from a healthy thyroid gland into the body of the patient in such a way that it can be slowly absorbed by the lymphatics and carried into the circulation as in health.

In the case of animals, G. Vassale and E. Gley have both shown that injections of thyroid extract remove the acute symptoms which follow thyroidectomy in dogs. Brown-Sèquard and D'Arsonval, reasoning from these results, suggested last year that injections of thyroid extract would do good in myxœdema. Previously to this, however, I had tried the effect of injections of an extract of the thyroid gland of a sheep in a well-marked case of myxœdema with such satisfactory results that other cases have been treated in the same way. For the injections an extract of the thyroid gland of a sheep has been prepared freshly for me each week by Messrs. Brady and Martin, of Newcastle, in the following manner: The thyroid glands are removed from several sheep just after they have been killed. Each lobe is minced and then bruised in a mortar. For each lobe employed 1 c.c. of glycerine and 1 c.c. of 0.5 per cent. solution of carbolic acid in boiled distilled water is added. The mixture is allowed to stand for twelve hours, and then squeezed through a cloth in a press so as to obtain as much liquid as possible from the mixture. All the apparatus used in the preparation is previously cleansed by boiling water and 1 in 20 carbolic acid solution.

In future the manufacturers are going to sterilise the extract by pressure at ordinary temperatures by means of the liquefied carbonic acid apparatus used by M. d'Arsonval. This will minimise the danger of causing local inflammation and suppuration.

As a rule, ℥ xxv of the extract have been injected with antiseptic precautions beneath the skin of the interscapular region once a week. In some cases it may be better to give a smaller injection of ℥ x to ℥ xv more frequently. The injection is given slowly, so that five minutes are occupied in injecting ℥ xxv. This is advisable, as occasionally some peculiar symptoms have immediately followed a rapid injection. These

were flushing, nausea, and stabbing pain in the lumbar region. Once there was also loss of consciousness and general tonic muscular spasm for a few seconds. When given slowly, the injection can be stopped if the patient begins to flush. No pressure should be made on the seat of injection, as it seems probable that these symptoms are due to a too rapid entrance of the extract into the circulation.

Case 1.—This case, related more fully in my last paper, was a woman of forty-six, who had suffered from myxœdema for four or five years. There was well-marked swelling of the face and hands, dry skin without perspiration, subnormal temperature, languor, and slow speech. After treatment for three months the swelling had greatly diminished, the natural expression of the face returned, the skin became moist, perspiration returned, the temperature rose, and there was marked improvement in the mental and bodily activity. After four months a considerable quantity of new hair had appeared on the head and had grown an inch in length. In this case this improvement, with the exception of the temperature, has been maintained for ten months by means of injections of ℥ xxv of the extract, given on the average once a fortnight. The temperature remained subnormal unless the injections were given once a week. At one time this patient had no injection for five weeks; at the end of that time the symptoms began to return. She soon regained her former improved condition when the treatment was resumed. During the first thirteen months no local disturbance of any moment followed the injection. After the last injection, on June 4th, a large brawny swelling slowly developed, which suppurated. After incision it discharged freely and healed, but the myxœdema symptoms have in the meantime returned as the injections were discontinued.

Case 2.—In this case I was able to carry out the treatment by the kind permission of Dr. James Angus. The patient was an inmate of the Newcastle Hospital for Incurables—M. H. A., single woman, aged fifty-two. The symptoms came on gradually twelve years ago, when the physician under whose care she was told her that she was suffering from myxœdema. Five years ago she was admitted into the hospital; since then she had lost nearly all her hair, but in other respects had not altered very much. When first seen (October, 1891) her aspect was typical. The features were thickened and swollen, the upper eyelids were swollen, and there was swelling beneath the right eye and round the neck; lips pale, but not much thickened. All the hair had disappeared from the head with the exception of two scanty tufts in each temporal region and a few scattered hairs in the parietal region. The scalp was covered with a brown layer of dried epidermis, which was very apparent. The hands were not notably swollen; the palms were dry and cracked. She walked slowly and with difficulty, and found it required considerable effort to do anything. The memory was not good, and she was very sensitive to cold. The skin was dry. The temperature varied between 95° and 96° in the left axilla. Pulse 72, regular. Urine normal. No thyroid gland could be felt. The patient was at her best when the treatment was commenced, and as cases of myxœdema get worse as winter comes on the improvement which took place may justly be attributed to the injections alone. The first was given on November 1st, and for three months ℥ xxv of the thyroid extract were injected once a week. The first sign of improvement was in the temperature, which, after the end of the first week, remained above 96°, and after the end of the first month nearly always above 97°; so that during December and January the temperature ranged between 97° and 99° instead of between 95° and 96°, as before the injections were given.

On November 15th the patient said she felt warmer, the swelling on the face had diminished, and the dried epidermis was beginning to peel off the scalp. On December 8th the hair was beginning to grow again on the scalp, and nearly all the dried epidermis had disappeared; the swelling of the face had further diminished. On January 19th the general condition had improved steadily, the dried epidermis had all disappeared from the scalp, which was covered with new hair an inch in length, the swelling of the face and neck was much less, and the hands were smaller. The skin was softer, and the patient was more active in mind and body.

During March and April the injections were given once a fortnight; the temperature remained one degree lower than with the weekly injections, and the patient did not feel so well. In other respects the improvement was maintained.

In May the injections were again given once a week.

A photograph taken in June showed very well the improvement which had taken place since the treatment was started. The expression of the face was brighter, and the swelling had practically disappeared. The hair had grown more than two inches in length. The skin had become softer, especially in the palms of the hands. By weekly injections, the temperature could be kept nearly normal. The mental and bodily activity had both improved very considerably. The patient had occasionally felt some *malaise* on the day of the injection, but this had been very slight when she remained in bed after it. Once the injection was followed by flushing, loss of consciousness, and tonic muscular spasm, lasting a few seconds; and once by flushing, nausea, and lumbar pain, lasting a few minutes. One injection caused an indurated swelling, which disappeared without suppuration, otherwise no inconvenience had been caused by the injections.

The next two cases also improved after the injections of the thyroid extract, but they show that patients with weak or degenerated hearts may die suddenly after the improvement has taken place, from cardiac failure after exertion to which they have for long been unaccustomed.

Case 3.—Mrs. M., aged sixty-two, was sent to me by Dr. H. Baumgartner. Symptoms of myxœdema had been present for six or seven years. There was swelling of the face and hands, dry skin, slow speech, and subnormal temperature. She was hardly able to get about the house. She suffered from great cardiac dyspnœa on exertion. Weekly injections of ℥xxv of thyroid extract caused very marked improvement. The swelling diminished considerably, perspiration increased. The bodily activity improved, so that she was able to walk out. Then she was confined to the house by an attack of bronchitis, and did not have an injection for three weeks. As soon as she had recovered, she went out, but, in trying to walk up a hill more quickly than usual, she died suddenly from cardiac failure.

Case 4.—A lady, aged sixty-four, seen with Dr. Hadfield Walker. The symptoms of myxœdema first began about five years ago. There was swelling of the face and hands, dry rough skin, absence of perspiration, loss of hair, slow speech, subnormal temperature, disinclination to make bodily efforts. For about a year she had suffered from considerable dyspnœa on exertion, and had had several attacks of syncope. The heart sounds were weak and intermittent, but no *bruit* could be detected. We concluded that she had some degeneration of the cardiac muscle.

In this case weekly injections, varying from ℥xii to ℥xxv of the thyroid extract were given for three months. Considerable improvement took place, so that scarcely any signs of myxœdema were left. She then went away to the country; but one morning, about a week after, while

stooping to put on her shoes, she "fainted," and died in about half an hour from cardiac failure.

These cases show that thyroid extract can to a very considerable extent supply the place of the natural secretion which has been lost in myxœdema. A patient's condition can be much improved, and the improvement can be maintained as long as the treatment is continued. This observation has been confirmed by Mr. Hurry Fenwick, though I have not been able to trace any definite diuretic action to the injections such as he observed. Dr. Wallace Beatty, Dr. Ernest Carter, and Dr. Arthur Davies, have also published cases in which similar results were obtained.

The cases with signs of cardiac degeneration should either not be selected for treatment, or they must be specially warned not to take any unusual exercise when the improvement takes place.—*The British Medical Journal*, August 27, 1892, p. 449.

10.—ON A VEGETABLE ALBUMEN "ALEURONAT" FOR DIABETES.

By Wilhelm Ebstein, M.D., Professor of Medicine in the University of Göttingen.

It is only three years ago that a German chemist, Dr. F. Hundhausen, of Hamm, in Westphalia, discovered a method of preparing the wheat glutin in so excellent a manner that it can be utilised for other foods beside bread. The manner in which Dr. Hundhausen prepares his flour is a secret. He has given to his preparation the name of "Aleuronat." Aleuronat can be bought in the manufactory of R. Hundhausen, Hamm, in Westphalia; it is a dry, yellow powder, almost without any taste and odour, which consists chiefly of vegetable albumen. The chemical analysis proves that aleuronat contains at least 80 per cent. of vegetable albumen. In some cases we have found 86 per cent., and in one case even 90 per cent. in the dry substance of aleuronat. The aleuronat has only 7 per cent. of carbohydrates and 8.8 per cent. of water. It contains a very small quantity of bran. I will add that the aleuronat is an absolutely durable preparation, which is not liable to decomposition or putrefaction, and which can be exported to all countries, while the common gluten and the other gluten preparations do not possess this faculty. I will not mention the prominent value which aleuronat has for the nutrition of healthy or suffering individuals; for it has been proved by very exact testings made by Dr. Constantinidi, from Manchester, in the laboratory of Professor Voit, at Munich, and by Dr. Kornanth at the Agricultural Institute at Vienna, and finally by the experiments of Professor Gruber, also in Vienna, that the vegetable albumen of aleuronat can be equally as well ultilised in the organism as the animal albumen of flesh. Besides, aleuronat is the cheapest albumen, and very appropriate for the nourishment of men. It may be sufficient to give here an outline of the importance of aleuronat in the dietetic treatment of diabetes mellitus. In the first place, aleuronat, as a powder, can be employed in all cases in which common flour is used by non-diabetic persons. Thus we can employ it in the preparation of soups, of sauces, of ragouts, for dredging meat; of vegetables—for instance, spinach, French beans, broccoli, sprouts, etc. In this manner it is possible to replace the defect of common flour in the preparation of many dishes, and to render the food more palatable for the poor diabetic patient. Aleuronat is of special value, however, in a baked state. Three years ago the first loaves of bread with aleuronat was baked at Zürich (Switzerland) at the request of Dr. M. Heim. It is true that

the aleuronat bread had been ordered already in several cases of diabetes mellitus; but, if I may take the liberty of saying so—scarcely systematically. It would be a great mistake to think that every aleuronat bread which is in trade is fit for diabetic patients. The diabetic patients need a peculiar kind of aleuronat bread, which must be suited to the nature of their illness. Firstly, the aleuronat bread for diabetic patients must be free from sugar; and secondly, it must contain more vegetable albumen than common bread, which contains only 6.7 per cent of gluten. I have been the first who ordered aleuronat bread to be made containing 30 and 40, up to 50 per cent. of aleuronat. There is a certain difficulty in making bread containing a greater percentage of aleuronat. But I think that it will be possible to prepare also loaves containing more aleuronat, considering the progress which the bakers have made who prepare the aleuronat bread at my order. For my assistant, the chemist Dr. Philos Karl Schulze, made at my order in my laboratory, experiments showing that it is possible to make aleuronat bread with a percentage of albumen in the dry substance amounting to 66. The use of more aleuronat is prevented by technical difficulties, yet this is not much to be regretted. In the first place, such a strong bread does not correspond to the common bread, and is not long tolerated by the patients; in the second place, a nutrition of vegetable albumen alone would not be useful for the diabetic patient, just as little as animal albumen would be good for him. It is well known that even with a healthy person, who would eat nothing but albumen, even the greatest quantity of this substance would not be sufficient to cover the waste of the albumen of the body. This is the case in a higher degree with a diabetic patient, with whom the body albumen is most probably much more inclined to decompose than with a healthy individual. Therefore it is neither necessary nor useful to offer to the patients a bread containing merely albumen. It is absolutely necessary that the bakers entrusted with the preparation of aleuronat bread for diabetic patients should be reliable, so that the physician as well as the patient knows what percentage of aleuronat the bread contains. The quantity of vegetable albumen will vary by some per cents., because the wheat has not a completely constant composition.

I have said that pure or entire albumen food cannot be tolerated for a long time by the diabetic patients. Eleven years ago I directed the attention of the medical men to the dangers which may arise from such a treatment. These dangers are the greater, the more serious the case of diabetes mellitus is. We are able to recognise this danger by the appearance of acetone or aceto-acetic acid in the urine. On commencing the treatment of the disease the physician introduces at once the so-called diabetic diet, not considering whether he has to do with a serious or a light form of the disease. The influence of the diet is even made the criterion of the degree of the illness. This is not my method. I never introduce the diabetic diet suddenly, but gradually, and all the more slowly the more serious the case is. The sudden change of diet would not have any inconvenience for the patient suffering from a light form, but even in these cases it would not be of particular advantage. But in serious cases the diabetic coma is imminent, with mortal issue; the result might be fatal if we were to order the diabetic diet in too sudden a manner. My method is of the reverse order from what is done generally. I enforce the diabetic diet all the more strictly the lighter the case is, but with the more serious patients, especially those accustomed to poor food lacking in albumen, I employ a nutrition which is richer in albumen quite gradually.—*The Medical Chronicle*, September, 1892, p. 362.

11.—THE HÆMATEMESIS OF ANÆMIC YOUNG WOMEN.

By Henry Hanford, M.D., M.R.C.P., Physician to the Nottingham General Hospital.

While the statistics of gastric ulcer obtained from *post mortem* records show the disease to be not very unequally divided between the two sexes, and while duodenal ulcer, which for practical purposes it is useless to divide from gastric ulcer, is more common in the male, hæmatemesis is far more frequent in young females, especially if we exclude those cases which are due to organic heart disease, to malignant disease, or to cirrhosis of the liver.

While far from denying the common occurrence of gastric ulcer in young women, and the favouring influences of anæmia, I am convinced that in numerous instances the hemorrhage arises from ruptured capillaries or small venules, and that no ulcer worthy of the name exists. The rupture of these small vessels is favoured by anæmia in several ways. Partly by malnutrition leading to fatty degeneration of the vessel walls, partly by general rise of the vascular tension, which has now been shown beyond dispute to be common in some forms of anæmia, and last, but not least, by some backward pressure in the gastric venous circulation from the dilatation of the right side of the heart, inevitable in all severe cases of anæmia. In my experience it is the anæmia, the constipation, and the feeble heart which urgently require attention, and the successful treatment of these removes the malnutrition of the vessels, the high vascular tension, and the venous remora, which we have laid down as the three most important causes of the hæmatemesis of young women.

It is, I think, easily possible to restrict the dietary too much in cases of hæmatemesis. But how are we to distinguish the cases where the blood is poured out from the surface of an ulcer from those where no visible ulcer exists, though of course there must be a breach of continuity for hemorrhage to arise? This is not in all cases possible. But the best guide to the dietetic treatment is the state of irritability of the stomach as indicated by pain and vomiting. Neither of these symptoms is a necessary consequence of gastric ulcer. They indicate either an inflamed ulcer or surrounding catarrh. If these two conditions are absent, a case of gastric ulcer may be treated safely and wisely on the same lines as one of hæmatemesis arising apart from ulcer. Hyperacidity, which so greatly favours the production or continuance of ulceration in the stomach, is generally indicated by pain coming on from half an hour to an hour or longer after food. It can be readily determined by testing the contents of the stomach removed by the stomach tube.

If hyperacidity is properly met by the administration of alkalies, a moderate amount of light food in a fine state of division may safely be given, even in gastric ulcer. Rapid healing cannot be looked for in the absence of abundant nutrition.

Ulcers of the stomach artificially produced in dogs cannot be prevented from healing so long as the dogs remain in good health. Where hæmatemesis is due to anæmia, and the anæmic dilatation of the right side of the heart leading to over-filling and congestion of the veins of the stomach, it is not necessary to give digitalis so long as the patient is kept strictly in bed; but so soon as the patient is allowed to get up, unless the tricuspid murmur and the dilatation of the right ventricle have disappeared during the prolonged period of rest and the treatment by iron and aperients, digitalis should certainly be added, and will prove of great service.—*British Medical Journal*, September 17, 1892, p. 623.

12.—ON DYSPNŒA AND ITS TREATMENT BY DRUGS.

By W. T. Gairdner, M.D., F.R.C.P.E.

After some preliminary remarks upon the varieties and causes of dyspnœa, Dr. Gairdner said :

Dyspnœa might be of purely hæmatic origin, as in anæmia, and especially pernicious anæmia. The blood corpuscles or oxygen carriers in this case were both few and inefficient, and the tissues were consequently not properly fed with oxygen. In this variety there was no cyanosis, and little even of the sensation of dyspnœa when the person was at rest ; there was no great effort ; the respiration as well as the pulse was often slow, and langour with general weakness were the prevailing conditions. There was no orthopnœa as a rule, but the moment any effort was made the respiration and the pulse quickened to a great degree, and the patient became at once breathless and exhausted. In this case the therapeutical indication was manifestly to restore hæmoglobin to the corpuscles, and increase their number. Iron, arsenic, careful regulation of the hygienic conditions of the bowels, of the food, and of exercise constituted the treatment. Failing these, an attempt might be made by the inhalation of oxygen gas to bring about *pro tempore* a more just balance as between the blood and the tissues ; but none of the ordinary pulmonary or cardiac drugs could be expected to give relief.

Again, dyspnœa might be due to pulmonary causes, in the first instance, exclusively ; and then the nature of the cause would, more than anything else, dominate the treatment. The typical case here was bronchitis with emphysema ; here cyanosis was often present, and might even be extreme during the exacerbation ; there might also be a distinctly paroxysmal element which, however it was to be accounted for physiologically, was practically to be designated spasmodic asthma. The breathing was greatly embarrassed, but became not so much accelerated as laborious. The whole disturbed mechanism of the respiratory act showed that the patient was under a mechanical or vital necessity to make every single respiration tell, by inspiring to the full extent of his vital capacity. Now, in this class, it was only by meeting the causes that treatment could do much, or, possibly, not anything at all. Inhalation of oxygen might, indeed, be suggested as a palliative, and was probably of benefit in some cases, but it could only go a short way. The one great therapeutical indication was the removal, as far as possible, of the obstruction to the passage of air through the smaller bronchial tubes into the air cells. Hence the general recognition, in a practical sense, though not perhaps theoretically, of a class of medicines called expectorants, and well known in detail to all.

But there was a quite distinct group of cases of dyspnœa of pulmonary origin, the typical instance of which was to be found in a perfectly uncomplicated case of acute lobar or so-called croupous pneumonia. Here the obstruction was not on the way to the air vessel, but in the air vessel, and accordingly no strained efforts of the muscles of respiration could be of any avail except by simply accelerating the rhythm of respiration, and thus admitting a more frequent succession of inhalations of fresh air to the still obstructed vessels. Nature, indeed, told us that this was so ; the patient in pneumonia when uncomplicated, however his breathing was accelerated (say to 40 or 50 to 60 in the minute), lay flat on his back, had no orthopnœa, breathed without straining effort, and had an entirely different physiognomy from the preceding group of cases, even though he might be equally or more cyanotic for the time. Expectorants were here only of use in so far as they kept clear the avenues to such parts of the lungs as were still capable

of admitting air; in this way they might be valuable, though they were not of the essence of the treatment.

In this group, and still more in the preceding group of cases, in short, in all cases of dyspnœa having a pulmonary or bronchial origin, opium was notoriously a drug which required to be used with great caution. Now in therapeutics it was requisite, if possible, to know why drugs were contraindicated, as well as why they were indicated. As a matter of fact, opium had quite recently been advocated in pneumonia by several great authorities, and it was difficult to deny absolutely that there were cases in which it might be used. At the same time the caution just referred to was none the less necessary.

Dr. Gairdner next alluded very briefly to the cases in which an obstacle exists in the upper part of the air passages, larynx, trachea, etc. The treatment of these cases by drugs is in many cases subordinate to the only really effective interference where even that is possible by surgical measures.

The remaining cases he would, for the purposes of their discussion, compress into one great and diverse third group, namely, cases in which the initial lesion was not essentially of the lungs, or at least not within the air passages and in the air cells, but outside of these or outside the pulmonary apparatus altogether. Cardiac dyspnœa in all its many varieties, dyspnœa attendant on pleural and pericardial effusions and dropsical swellings of all kinds, to which must be allied, for therapeutical purposes, dyspnœa from œdema of the tissue of the lungs themselves, must all be held as within the large and multiform group. Uræmic dyspnœa occupied a doubtful position corresponding with the present doubtful condition of its pathology. It might be, no doubt often was attended by œdema of the lungs, but it was probably not wholly caused thereby; perhaps it was in part hæmatic, or perhaps neurotic. The essential point in the therapeutics of this great group was and must be, if possible, the removal of the cause, whether a fluid or other effusion, when that was present and distinctly operating by pressure on the mechanism of respiration. Again in cases of cardiac origin, the essential point was to strengthen the heart by cardiac tonics or relieve overdistension of its right side so as to overcome the difficulties it had in contracting and keeping up circulation in the lungs. It was to be remembered in this connection that dyspnœa was quite as effectually caused by an obstacle which prevented the access of the blood to the air in the vesicles as by an obstruction in the bronchi to the access of air to those vesicles. It was also to be remembered that, as Cohnheim had put it, the normal respiratory movements and *a fortiori* the respiratory efforts of dyspnœa favoured the pulmonary circulation so that there was at every point action and reaction between the two great systems of the circulation and respiration, and the remedy which acted upon the one acted also on the other.

With respect to the great majority of cases in this group, where there were obstructing matters which could not be dealt with by the administration of expectorants, it was well always to remember the maxim of Baglivi —propounded originally, no doubt, from the point of view of experience, without reference to any such physiological or psychological principles as were here set forth—"in morbus pulmonum ad vias urine ducendum." The principle was that the blood required to be reduced in volume *pro tempore* by the elimination of water, and this ought to be done both as rapidly and as safely as possible—that is to say, with as little injury and strain as possible. If the urgency of the symptoms would allow of this elimination taking place by the kidneys, according to Baglivi's principle

it was as a rule best to employ active diuretics, and especially saline diuretics; and among these Dr. Gairdner had an old and abiding preference for cream of tartar as at once the most manageable, the most popular and the most safe of all diuretics, a fact verified by the experience in Scotland, at least, of much more than a century. But even in the case of those cardiac tonics—especially digitalis and strophanthus, which had, as some held, only incidentally a diuretic action—it might fairly be affirmed that their action as cardiac tonics was most secure and most efficient when it is accompanied by diuresis. In the employment of all these remedies Dr. Gairdner had been in the habit of paying close attention both to the quantity and the character of the urine, and when the former was greatly reduced, as it usually was before active remedies were begun, it was the increase in quantity—in favourable cases the rapid and enormous increase in quantity—that told of the safe action of the remedy. Where such increase in quantity did not take place, the tonic action either of digitalis or strophanthus was apt to end and the toxic action to begin.

In some cases the kidneys refused to act, or acted with difficulty, under remedies, owing either to disease in their texture or to peculiarities in their innervation. In London, ever since the time of Dr. Bright, it had been usual to prescribe drastic cathartics, and to discountenance diuretics in such cases. Without admitting that this practice was a good one, or even correct in principle, it might be at least said that when the urgency of the case required some other emunctory than the kidneys, the skin was in most cases to be preferred to the bowel. But warm baths and the diaphoretic regimen generally could be employed only in a limited number of such cases, and these not the most grave. It was precisely, however, in such cases that we had a remedy of most unquestionable power and efficiency in jaborandi or pilocarpin, the rapid action of which on the skin—and also in many cases simultaneously on the kidneys and other excreting organs—made it a therapeutic agent of the highest value, which only required to be mentioned with a *caveat* because in some cases, particularly of cardiac dyspnœa, it might, like every other form of extremely active remedy, produce incidentally too much prostration.

Venesection.—Finally, Dr. Gairdner wished to state that, although not included in the plan of the present discussion, venesection, now so much disused, was still applicable to some of these cases in a higher degree than any other remedy.—*The Medical Press and Circular*, August 10, 1892, p. 131.

13.—ON THE SYMPTOMS, AND TREATMENT BY INTESTINAL ANTISEPSIS, OF ENTERIC FEVER.

By Richard Caton, M.D., F.R.C.P., Physician to the Liverpool Royal Infirmary.

I propose in this paper to give a brief summary of the symptoms and history, so far as I have myself observed them, of forty-six cases of enteric fever treated in hospital during the last fifteen years. As concerns treatment, I shall sketch briefly the methods employed and contrast the results obtained by intestinal antisepsis with those following the ordinary expectant method. The duration, symptoms, treatment, and issue of these cases are represented as far as practicable in the tabular statement annexed.

The average age of my cases was 22.9 years, and, as we usually find in hospital statistics, the large majority were males. The febrile period expresses the time elapsing between the initial rigour or other first symptoms, and the decline of temperature to the normal. In four cases it

was found impossible to ascertain the date of first symptoms. For statistical purposes I add a week to observed duration in these cases. In 38 cases which recovered, and of which I have complete records, the average duration of fever was 30.8 days, including any relapse or recrudescence that followed. Seventeen cases had a relapse or return of fever, usually slight. In some cases the disease was of great severity and long duration; for example, in Case 7 the pyrexia lasted 70 days; probably this may have been due to an intercurrent relapse. Excluding Cases 24 and 38, which were not treated as cases of enteric fever, the average stay in hospital of the 44 cases was 46.7 days.

It is most convenient to recount special symptoms under the head of the various systems, as one would do in recording a single case. I commence with the integumentary system. Among 44 cases the typical rose rash was present in 27; in Case 30 desquamation followed; in Case 1 erysipelas formed a troublesome sequela. In five cases sudamina were observed, in two boils, and in one instance a carbuncle appeared during early convalescence, while two patients suffered from abscesses in the subcutaneous tissue.

Taking next the alimentary system, we had invariably dryness and whiteness of tongue and defective salivary secretion; in one case hemorrhage from the gums occurred. In ten instances marked tonsillitis or pharyngitis were present, and were much complained of by the patient; doubtless they existed in slighter degree in many other cases. In a private case I remember once seeing deep ulceration of tonsils and pharynx, with separation of large sloughs, which remained one of the sloughs from Peyer's patches. In nine cases vomiting occurred, in Case 12 to such an extent as to endanger life. Loose stools of the typical character were noted in 33 cases. In Case 30 we had evidence that ulceration does not necessarily cause diarrhœa; the patient had persistent constipation, and the necropsy revealed unusually extensive ulceration. In four instances hemorrhage from the bowel occurred in considerable amount. Tympanites was common, and in a few instances amounted to meteorism. Soreness on pressure in the right iliac fossa was observed in 19 cases. From the tenderness on pressure which frequently existed in the umbilical region I was convinced that the mesenteric glands were enlarged and sore. In Case 10 perforation and fatal peritonitis occurred after 30 days' treatment in hospital, and in spite of care and rest.

Under the respiratory system I shall take first the nasal chamber. We had five cases of epistaxis, in Case 2 so formidable as to imperil life, and to require the frequent use of ergotine. Bronchial catarrh occurred in 23 cases; to a severe extent in about eight. In four cases pneumonia occurred. Case 21 is a man who was all but drowned in a dock; vitality was restored by artificial respiration, after which he vomited a large quantity of fœtid dock water; then came on acute double pneumonia and left-sided pleurisy, with effusion, requiring thoracocentesis; while recovering from the pneumonia enteric fever set in, commencing about the twenty-sixth day after admission. Case 44 was admitted with influenza and acute double pneumonia of great severity. When recovering the patient was attacked on the twenty-seventh day after admission by enteric fever. In the former of these two cases, I assume that the enteric contagion was derived from the dock water. In the second case it is difficult to explain. No typhoid case was in the ward at the time, and the sanitary arrangements of the Infirmary are, I think, as perfect as they can be made. A possible explanation is that the first illness, which appeared to be merely pneumonia, was enteric fever without characteristic symptoms.

As regards the circulatory system, rapid pulse with low tension was invariable, with frequent dicrotism. The first cardiac sound frequently became muffled and indistinct during the second week. One case of thrombosis occurred in the leg. As to the spleen, I confess myself of Dr. Fagge's opinion that, although enlargement is common, it is often difficult to detect, being masked by tympanites. In Case 30 the spleen weighed one pound. I have observed the organ to be tender on pressure during the first week, and to lose the tenderness later.

As regards the nervous system, headache was common, deafness also was frequent. Convulsions, which are rare in the adult, occurred in Case 24, accompanied by coma. Case 5 had severe muscular cramps, and Cases 7 and 43 complained respectively of pedal and crural neuralgia during convalescence. Nocturnal delirium was frequent. I had only two cases of the temporary imbecility which sometimes follows the disease; patient No. 39 became imbecile during the interval between the first defervescence and the relapse. He was a public-house keeper, who had taken much spirits. Case 44 was partially imbecile, also during the later stages of the disease. Both recovered perfectly.

As to the renal system, we had seven cases of albuminuria and one of hæmaturia.

The subject of treatment is more practical and more interesting. In a synopsis I have put down every case I had, but in the consideration of treatment I must exclude two of the 46 cases, one in which enteric fever was first diagnosed at the necropsy, and another of a patient who, after treatment at his own house by a general practitioner, was brought to the Infirmary during a relapse, and speedily showed symptoms of perforation. The remaining 44 cases I divide into two groups of 22 each. The one group was treated by the expectant method; among these cases four deaths occurred. The other group was treated by antiseptics, with the object of securing intestinal antisepsis; of this group every case recovered. In most respects all these cases received the same treatment. They were kept in the recumbent position until temperature had been normal for ten or twelve days. All were put on a light diet; milk and lime water, and if there was but little flatus or diarrhœa, beef-tea was given. Alcohol was administered when the first cardiac sound became muffled and the pulse soft, the amount two, three, four, rarely six ounces of brandy, in small divided doses with food. It was always reduced in quantity and abandoned as convalescence advanced and the pulse strengthened. Hyperpyrexia was not frequent, but when occurring it was treated sometimes by tepid baths, but more frequently by cold sponging in the bed, and by the administration of five-grain doses of quinine. If the night rise of temperature is not beyond 104° we do not interfere. In enteric fever I prefer sponging with spirit and water to the use of the bath; it disturbs and exhausts the patient less. I always avoid the use of antipyrin and antifebrin.

During convalescence the patient is kept for a considerable time on light diet, only foods which are easily and quickly digested being given. By degrees, increasing amounts of farinaceous food—meat juices, fish, eggs, and meat—are in succession allowed. Two or three instances falling under my own observation of evil results following too early a return to a meat diet have caused me to regard it with dread; for example, I remember a clergyman who took a substantial meal of roast mutton two or three days after his temperature had fallen; he did this in opposition to the advice of his medical attendants. Gastric and intestinal dyspepsia followed, and death occurred in three days. Case 38 in my list was treated at patient's own house by a practitioner, but when convalescing, in oppo-

sition to the doctor's advice, he resumed a heavy meat diet, and refused to remain in bed. Severe dyspepsia, flatus, perforation, and death followed.

As regards the constipation which so often occurs during convalescence, I allow it to continue as long as seven or eight days, provided the intestinal antiseptic is being taken. No harm seems to result. If it is needful to interfere a glycerine enema is used. Any special symptoms of course are treated.

All of the 44 cases were treated on the principles just stated, but in addition, as I have said, half the total number took regularly a drug which was intended to produce intestinal antisepsis. The results of this latter treatment have been satisfactory, but before stating them I wish to say I tried several antiseptics, namely, salicylate of soda, creasote, naphthalin, and alpha-naphthol. Six cases were treated by the first drug; all recovered, but still I believed the salicylate to have a nauseating and depressing influence. The average stay in hospital was prolonged to fifty-six days. I have, therefore, abandoned the use of the salicylate in enteric fever. I have observed no bad results from the use of creasote, naphthalin, and alpha-naphthol. The average stay in hospital of 16 cases treated by one or other of these was forty-two days; the average stay in hospital of the 22 cases, including those treated by salicylate, was forty-six days. As to the cases treated by the expectant method, of whom, as I have said, four died, the average stay in hospital of the remaining 18 who recovered was 52.1 days.

The average duration of pyrexia of the 22 cases treated by antiseptics was 25.3 days. From the same number treated by the expectant method I deduct four who died and two whose charts have been lost. The average duration of pyrexia of the remaining 16 is 37.9 days. The most striking point in the comparison of the two groups is the immunity from relapse enjoyed by the cases which were treated by intestinal antisepsis. Of the 22 cases the average days of relapse were 1.8, while among the 16 cases who recovered under expectant treatment, and whose charts are preserved, the average days of relapse were nine.

Stated in tabular form the total results are as follows:

	Deaths.	Days of Fever.	Days of Relapse.	Days in Hospital.
Expectant treatment . .	4	37.9	9	52
Intestinal antisepsis . .	—	25.3	1.8	46

Watching these cases from day to day, I have been much impressed by the apparent good effects of the intestinal antiseptic treatment. It is obviously a rational method. There is considerable evidence that such bodies as chlorine, creasote, naphthalin, iodine, iodoform, and alpha- and beta-naphthol are destructive to septic and poisonous compounds and organisms found in the intestinal canal. It is, therefore, antecedently probable that they would be of service. I am, however, fully aware that the number of my own cases is too small for the drawing of a definite conclusion; they only become of value when used to support the larger experience of others. Dr. Wolff, of Philadelphia, for example, has treated 100 cases with naphthalin; the average febrile period was 24.4 days, and the imortality two per cent., after excluding deaths from heart disease

and phthisis, and those of patients brought in moribund. Dr. Gramshaw treated 116 cases with iodine and carbolic acid, and had no deaths. Bouchard states that from the year 1854 to 1885 the mortality from enteric fever at the Lariboisière Hospital was 21.1 per cent. Since 1885, the treatment pursued has been quinine with intestinal antisepsis, and the mortality has fallen to 11.7 per cent. I could adduce many more evidences of the value of intestinal antisepsis in the treatment of enteric fever, but I do not wish to lengthen this paper. I may add that I administer the napthalin in the form of pill; six or eight pills, each containing three or four grains of the drug, are given daily. Alpha-napthol I have also given in pill in similar amounts.

I fear that a certain mortality will always attend enteric fever, but, as the use of antiseptics has lessened the danger arising from external injury to the body, so the experiments of others on a large scale, and my own very limited experience, encourage me to hope that intestinal antisepsis may similarly lessen the mortality of enteric fever.—*British Medical Journal*, July 23, 1892, p. 165.

DISEASES OF THE NERVOUS SYSTEM.

14.—ON LOCAL ANÆSTHESIA AS A GUIDE IN THE DIAGNOSIS OF LESIONS OF THE LOWER SPINAL CORD.

By M. Allen Starr, M.D., Professor of Diseases of the Mind and Nervous System to the College of Physicians and Surgeons of New York.

[Dr. Starr contributes an important and highly-instructive paper on this subject, based upon the study of twelve cases observed by himself or recorded by others. We reproduce here Dr. Starr's conclusions:]

It has been my good fortune during the past few years to observe a number of patients suffering from disease in or about the lower half of the spinal cord, who have presented very interesting disturbances of sensation. In the medical journals and works I have found a few cases of more or less similar character—some of them with post-mortem records.

I hope to show from their study that a limited area of anæsthesia is produced by a limited lesion in the spinal cord; that as the lesion ascends the cord from its lowest limit upward, the area of anæsthesia extends in a definite manner upon the surface of the body; and that the situation and shape of the area of anæsthesia are positive indications of the level of the lesion in the spinal cord.

First, *as to the location in the spinal cord of the centres of control of the bladder and rectum.* These centres appear to be uniformly affected together, and, therefore, must be adjacent to one another. The control of the sphincters is lost when the lesion involves the lower three sacral segments, and the centres probably lie in the lower two segments of the cord. This is proven by the autopsies in the cases of Kirchkoff, Westphal, Oppenheim, and Herter, and by the distribution of sensory symptoms in two of my cases, and in those of Rosenthal, Bernhardt, Eulenberg, Mills, and Huber. In these cases without autopsy the situation of the anæsthesia was such as to show that the lesion was limited to the two or three lower sacral segments, and in all the control of the sphincters was lost.

When these segments are destroyed, the sphincter of the rectum is relaxed, and there is no opposition to the introduction of the finger into the anus. The entire rectum also loses its power of contraction so that it is

only emptied by pressure from above or by artificial evacuation by means of enemata or excavation.

The sphincter of the bladder does not appear to be permanently relaxed when the cord is destroyed. At any rate a constant dribbling of the urine rarely, if ever, occurs. There is, however, a moderate inconti-

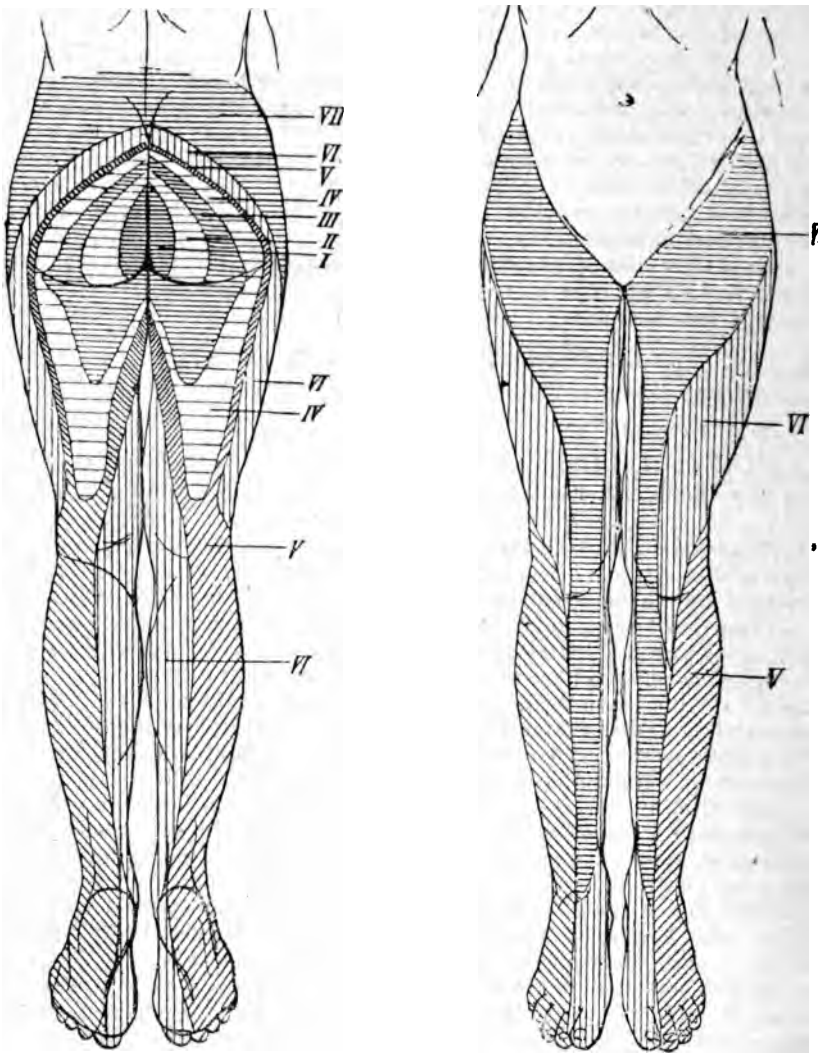

FIG. 1.

Areas of anæsthesia in lesions at various levels of the spinal cord from sacral v. to lumbar II. *I.* Sacral v. *II.* Sacral IV. *III.* Sacral III. *IV.* Sacral I. *V.* Lumbar v. *VI.* Lumbar III. *VII.* Lumbar II.

nence, for as soon as a few ounces of urine collects in the bladder the pressure overcomes the slight resistance of the sphincter and the urine flows away. Hence a frequent emptying of the bladder without the knowledge of the patient takes place. There is rarely a sufficient resistance offered by the sphincter to cause a retention of urine and distention

of the bladder when the lesion destroys the bladder centres. This is much more liable to occur when the lesion lies at a somewhat higher level in the upper sacral region and produces an irritation of the mechanism of the bladder. It seems to occur also when the lesion involves the cauda equina, producing pressure on the nerve roots. Since pressure upon a nerve elsewhere never produces tonic spasm, this effect must be of reflex nature from compression of the sensory filaments.

If, in a case of paraplegia, the mechanism of the bladder and rectum is not interfered with—if these organs empty themselves naturally when full—in spite of or without the knowledge or control of the patient, it is a proof that the lesion has not destroyed the lower sacral segments of the spinal cord. In such cases the exact area of anæsthesia should be carefully determined, for the information thus afforded may enable an exact diagnosis of the situation of the lesion and also of the actual extent on the cord to be determined.

Secondly, *as to the distribution of anæsthesia in lesions of the lower part of the spinal cord.* This is shown in the diagrams (Fig. 1). These diagrams have been prepared by carefully comparing and superposing the charts of cases cited. In some cases the area of anæsthesia was strictly limited from the outset to a special region. In other cases the area of anæsthesia was large at the outset and gradually diminished in extent. In other cases still the area of anæsthesia was at first small and then increased. The three sets of cases, therefore, must agree in their results, in order to establish any conclusion as to the areas of anæsthesia produced by lesions at various levels. And if the cases here collected be carefully studied, it will be seen that they do thus agree. In the diagram of the back it is possible to outline seven concentric zones of anæsthesia, starting from the lowest part of the sulcus between the buttocks as a centre. These are numbered I. to VII. in the diagram.

I. The *first zone* is oval in shape, small in extent, and includes the perineum, the posterior part of the scrotum in males, the vagina in females; it also includes the mucous membrane of the rectum.

II. The *second zone* is heart-shaped—point up—and includes the entire scrotum and posterior surface of the penis and mucous membrane of the urethra in males—the entire genitals of the female, except the outer surface of the labia majora and the mons veneris.

These two zones can be separated clinically, for in some cases the smaller zone only has been anæsthetic. In the majority of cases the larger zone has been found anæsthetic. No autopsies are at hand to enable a distinction of lesion to be made between these two zones, but from the cases of Kirchkoff, Westphal, and Herter it is possible to affirm that the second zone was produced by a lesion involving the conus medullaris and the fifth and fourth sacral segments of the cord.

III. The *third zone* is considerably larger, involving a greater surface of the buttocks and extending down the back of the thighs over a triangular area, point down. This has been named the "saddle-shaped area," coinciding about with the surface of the seat in contact with the saddle when riding. A zone of anæsthesia of this shape is due, as the autopsy in Oppenheim's case shows, to a lesion involving the fifth, fourth, and third sacral segments.

IV. The *fourth zone* is of a similar shape to the third, but more extensive, a greater surface on the back of the thighs being involved, and the anæsthesia extends in a band almost as low as the popliteal space. This area has been established clinically in several cases: there is as yet no autopsy to determine its lesion; but since the smaller zone is due to lesion

at the third sacral segment, and the next larger zone is due to lesion in the fifth lumbar segment, it is allowable to conclude that this region corresponds with the second and first sacral segments.

In thus outlining four zones of the skin and assigning them to various segments of the sacral portions of the spinal cord, it is not my intention to lay down artificial boundaries or to affirm that all cases will exactly coincide. The lesions in the sacral cord are not limited exactly to one or two segments. The sacral cord is small in extent and lesions involve it to a greater or lesser degree, consequently these zones are not always symmetrical on the two sides of the body; the lesion being a little higher on one side of the cord than on the other, the zone of anæsthesia will be greater on one thigh than on the other, as in three of my cases and in those of Herter, Mills, and Osler. I only wish to show that as the cord is invaded by disease from below upward, the area of the skin which becomes anæsthetic increases in extent, and that the shape of the area is characteristic; so that from the study of the area the extent of the lesion can be determined.

I also desire to call attention to the fact observed in one of my cases, that this area of the skin which corresponds to the sacral cord may remain sensitive in a lesion of the lumbar cord, when that lesion is so limited in extent as not to cut off impressions passing from the sacral cord to the brain. This affords an important evidence of the extent of a lesion in the lumbar cord. For if that lesion is transverse and involves all the columns, all sensation below its level will be lost, while, if the lesion is limited and does not affect the posterior columns of the cord through which impulses are passing up from the sacral region, the total anæsthesia will not include the parts of the skin related to the sacral cord.

Another conclusion of some importance is brought out from a study of these facts, viz., that in locomotor ataxia the lesion probably begins quite uniformly in the lumbar cord, and not in the sacral cord. In a review of about fifty cases of locomotor ataxia, of which I have careful records, I find that the lightning pains of the initial stage and the hyperæsthesia especially to cold, which accompany them, are rarely referred to the buttocks and seat. They are quite uniformly referred to the feet or to the legs below the knees or to the front and outer sides of the thighs. Pain in the rectum, it is true, may be felt. In one of my cases the initial paræthesia and anæsthesia occurred in the rectum and perineum, the complaint for several months being of a feeling as if a large cannon-ball were lying on the perineum. But such localization of pain and paræsthesia is the exception. If, however, the lesion of locomotor ataxia began in the sacral portion of the cord, it is reasonable to suppose that the sensory symptoms would be referred to the region of the body correponding to that part of the cord, and that bladder disturbance would be the first symptom. It seems, therefore, quite probable that the lesion in locomotor ataxia begins in the lumbar region—a fact to which the early loss of knee-jerk also points. This may have a bearing on the disputed question as to whether locomotor ataxia is a true "system disease."

The area of anæsthesia produced by lesions in the lumbar cord is also determined by these cases and shown in the diagram.

V. The *fifth zone* of anæsthesia is seen to include the first four zones, and to extend down the back of the thigh through the popliteal space in a band, and then to descend the outer surface of the leg to the foot. In some cases it ends at the ankle, in others it involves the entire side of the foot, dorsum, and sole, and three and a half toes. Eulenberg's case, cases of Kahler and Mills not cited here, and two of my own cases, demonstrate

this distribution. When a lesion extends from the sacral into the lumbar cord the anæsthesia extends from the thigh down the outer side of the leg. This area then corresponds to the fifth lumbar segment of the cord.

VI. The *sixth zone* of anæsthesia is produced by a lesion of the third lumbar segment. When the third lumbar segment is diseased, the entire back of the thighs and legs is anæsthetic, and the front of thighs is also anæsthetic, except over a funnel-shaped zone which extends from above downward, the narrow tube of the funnel reaching along the shin even to the foot. This anæsthetic zone will probably be separated later into two separate parts corresponding to lesions of the fourth and third lumbar segments. There is not as yet a sufficient number of cases to warrant such a distinction. The exact limits of anæsthesia on the feet are still uncertain, and no more exact statement than that given is warranted. It is quite common to find the inner arch of the foot sensitive when the toes and heel and entire dorsum are anæsthetic, and it is probable that the higher the lesion the greater the anæsthesia on the foot.

VII. The last and *largest zone* of anæsthesia shown in the diagram is produced by a lesion of the four lower lumbar segments, that is, by destruction of all but the first lumbar segment of the cord. It will be noticed that the line of anæsthesia is much lower in front than behind, and that it follows the line of Poupart's ligament. It is only when the first lumbar segment of the cord is invaded that the abdominal wall becomes anæsthetic.

From this level upward the zone of anæsthesia extends around the body in a girdle, and there is no difficulty in locating the level of the lesion in the dorsal cord.

It is to be remembered that in all these lesions and areas of anæsthesia, the *anus, perineum, and the genitals are included in the insensitive region.* This is an important fact in the differentiation of cases of organic from functional paraplegia. It is also to be noticed that the shape of the area of anæsthesia in the back differs in organic and in functional cases.

In the differentiation of lesions of the spinal cord from those of the cauda equina the study of the anæsthesia alone does not aid very greatly in the differentiation. A lesion of the sacral nerve roots produces an identical area of anæsthesia as a lesion of the sacral cord. It also produces a paralysis of the bladder and rectum. Thorburn has proved that pressure exerted on the cauda equina affects the nerves in the middle of the cauda to a greater extent than those near the surface. "Those nerves which pass out lower down are, in the cauda, situated nearer the middle line than those which pass out above them, and hence they would appear to have more room to escape from pressure, and we might expect them to suffer less rather than more; but that the contrary is the case is an established fact, and we are able definitely to conclude that in a pressure lesion of the entire cauda equina those nerve roots which emerge lower down are more seriously injured than those above them." This conclusion has been proved by the autopsy in Herter's case, where the middle roots only were degenerated, though the pressure was exerted on all the roots at the level of the last lumbar nerve.

There is no way, therefore, of determining by a study of the anæsthesia alone a pressure lesion on the cauda high up from a destructive lesion in the cord at its lowest extremity.

The diagnosis may, however, be made, first, from a study of the surgical indications, chiefly of the nature of deformity, the relation of the vertebræ to the segments of the cord being remembered. The cord ends at the first lumbar vertebra, hence any fracture below that is necessarily compressing the cauda equina. Secondly, the diagnosis may be made from

a study of the paralysis which accompanies the anæsthesia. This paralysis is very slight in lower cord lesions, being confined to the peronei muscles when the lesion is at or below the second sacral segment; it involves the anterior tibial and posterior tibial muscles when all the sacral segments are involved, and only invades the movements of the hip-joint when the entire lumbar region of the cord is affected. In cauda lesions, on the other hand, the pressure on the nerve roots is often sufficient to produce paralysis when sensation is but slightly affected.

The cases in which autopsy or operation has revealed the nature of the lesion in diseases of the lower cord demonstrate, however, that a sharp differentiation between cauda equina and cord lesions is not often justifiable. In four autopsies both cord and cauda were invaded by the lesion, which was a meningomyelitis with hemorrhage, the result being a destruction of the lower cord and a matting together of the nerves of the cauda in a mass of inflammatory material. It seems, therefore, questionable whether, except in cases of fracture below the first lumbar vertebra with displacement of the vertebræ, any sharp line of distinction between cord and cauda lesions should be attempted. It is chiefly in the surgical cases that operative interference has been attempted, and here, as already stated, the surgical rather than the medical facts have been the surest guides to the operation.

There is one case on record, however, of successful operation for removal of a tumour compressing the cauda equina (Laquer, *Neurol. Centralbl.*, 1891, x., 193). In this case the extreme pain in the sacral region and the tenderness over the sacral region appear to have been the particular symptoms which guided the operator; the tumour was extra-dural, and the nervous symptoms were by no means such as to suggest a lesion of the spinal cord. In two other cases of tumour of the cauda equina—viz., those of Simon (*Arch. f. Psych.*, 1875) and Lachmann (*Ibid.*, 1882), the characteristic nervous symptoms of compression of the cauda were wholly wanting, and the cases were not diagnosticated during life.

Some writers upon the differential diagnosis between cord and cauda equina lesions have laid stress upon the fact that sensations of touch, temperature, and pain are not always equally destroyed, and have sought to conclude that this inequality of sensory disturbance was evidence of cord lesion as distinguished from cauda equina lesion. The cases here cited of Herter and Oppenheim with autopsies, and two of my own cases, in which the operation showed the lesion to be a compression of the cauda without lesion of the cord, prove that this point of differential diagnosis is not well taken. In both cord and cauda lesions the disturbance of tactile sense may be more or less extensive than that of the senses of pain and temperature.

It is evident from the facts here presented that a careful study of disturbances of sensation is a valuable aid in the diagnosis of the situation of lesions in the spinal cord and cauda equina. It is, however, to be remembered that anæsthesia is but one of a series of symptoms entering into that diagnosis, and the condition of reflexes, and the power, tone, and electric reactions of the muscles are not to be neglected in the examination of any case. It is only when *all* the signs of a local lesion coincide that the diagnosis is an absolute one.—*The American Journal of the Medical Sciences*, July, 1892, p. 16.

15.—REMARKS UPON THE PARALYSES OF CHILDREN WHICH OCCUR DURING AND AFTER INFECTIOUS DISEASES.

By M. Imogene Bassette, M.D., Instructor in Nervous Diseases in the Philadelphia Polyclinic.

[Dr. Bassette publishes an interesting and important series of examples of paralysis occurring during or after the well-known infectious diseases of childhood. The cases recorded are eighteen in number, and most of them came under observation at the Philadelphia Polyclinic. The following is an abstract of Dr. Bassette's general remarks upon the cases.]

Some of these cases show the occurrence of either neuritis alone, or poliomyelitis alone, or both of these diseases conjointly, during or following affections which are universally recognized as contagious or infectious in character, namely, measles, scarlet fever, diphtheria, whooping-cough, mumps, etc. These facts suggest the idea that all the cases of this type of infantile and juvenile poliomyelitis may be infectious in origin, and their well-known mode of onset would favour this view.

From a study of the eighteen cases reported in this paper, and the brief references made to the literature of this subject, it will be seen that the lesions present in the paralyses of infectious disease may be cerebral, spinal, or neural, or may affect at the same time several portions of the nervous system. Any of these forms of paralysis, as has been pointed out, in connection with several cases, may be classed as toxæmic, that is, due to the action of poisonous organisms, either directly or indirectly, but not necessarily giving rise to inflammation of either the nerves, the cord, or the brain. The changes in structure and the symptoms, are, in other words, dependent upon some poisonous agent, probably a ptomaine or ptomaines generated by the specific infection of the disease. In all cases this morbific agent plays its part, but in a large percentage the pathological process does not go on to the setting up of true inflammation.

Some cerebral cases are clearly the result of hemorrhage, embolisms, etc., whatever may have been the steps which have led to the occurrence of these lesions. A few of these cases are probably forms of true encephalitis, localised or more or less diffused. In many of them, however, the functions of the brain would seem to have been arrested or inhibited by toxic agency.

With regard to spinal cases, it is only necessary to say that some of them are of the type of either poliomyelitis or a more diffused myelitis. These cases differ largely in severity and destructiveness, from cases of the mildest type with speedy recovery, to those which go on to greater or less destruction of the anterior horns.

Local, diffused, or multiple neuritis somewhat frequently occurs during or after infectious diseases, and may be associated or not with spinal or cerebral disease. Some striking examples are given in this series of cases.

The mistake must not be made by supposing that every case of paralysis, cerebral or spinal, in which pain, or even neuritis, is present in the paralysed members, has been originally a case of concurrent neuritis and poliomyelitis, or neuritis of any kind. In a considerable percentage of cases of paraplegia, hemiplegia, etc., from spinal or cerebral lesions—hemorrhage, thrombosis, tumours, myelitis, etc.—the limbs which are the seat of the paralysis become also the seat of intense pain, both spontaneous and on handling. The neuritis in these cases is sometimes secondary, and is the result of mechanical or other causes. The arm or the leg, for instance, unsupported by the muscles which usually hold it in position, is dragged partly out of the socket, and the nerves are subjected to twisting and stretching, and a traumatic neuritis is originated. I have seen sever-

cases of this kind at the Polyclinic, and in visiting the wards of the Philadelphia Hospital.

The diagnosis of the infectious paralytic affections in children might be made to cover the consideration of all or almost all juvenile palsies. Those cases of paralysis associated with arrest of development, or active lesions of the brain or its membranes, are not likely, except by the accident of coincidence, to be confused with the infectious paralyses. These cases have been thoroughly considered by Osler, Sachs, and Peterson, and others.

The infectious palsies are to be separated from numerous other paralyses and dystrophies of children, as Friedreich's ataxia, the muscular atrophies, and pseudo-hypertrophies, etc., to which attention might be first directed shortly after the occurrence of one of the infectious diseases of children. It is only necessary to bear in mind this possibility, and to make a careful examination both into the history and symptomatology for such degenerative diseases. Even locomotor ataxia of the ordinary type may develop in childhood, and the paralytic and ataxic disorders of infectious diseases have not a few symptoms in common with these cases.

The affection which has been described by Berg as rachitic pseudo-paraplegia must sometimes be separated. These rachitic patients are often unable to walk, or are extremely weak, but they have the general signs of rachitis in the condition of the sternum, spine, ribs, liver, etc. They may even exhibit tenderness of the muscles and bony prominences, making them thus far simulate neuritis; but close examination will show that the muscles are not really paralysed or atrophied. The electrical reactions are normal, and these patients usually get well soon under the influence of fresh air, good food, cod-liver oil, and preparations containing iodine, such as Lugol's solution, syrup of the iodide of iron, and hydriodic acid.

Almost any form of paralysis may occur in children as the result of hysteria, and such hysterical palsies are perhaps more likely to occur after exhausting diseases. The presence of peculiarly disturbed anæsthesia, of spastic seizures or contractions, and of other hysterical symptoms, and the non-involvement of the reflexes, superficial, deep, or organic, except in the way of a slight exaggeration, and the result of treatment will assist in making the diagnosis, as has been pointed out by Hun.

Occasionally hysterical paralysis or other hysterical phenomena are developed after infectious diseases, probably not because of any specific action of the poison of the disease, but rather owing to the general nervous weakness produced in a hysterically predisposed patient by a severe illness.

The prognosis of the juvenile palsies which accompany or follow infectious diseases is of great importance. The history and character of each case must be carefully studied before a prognosis is given. While a large majority of infectious paralyses are undoubtedly curable, some are permanent, or can only be partially remedied by time and treatment. The necessity of distinguishing among cases, not only as to their location in the brain, spinal cord, or peripheral nerves, but also as to their nature and extent, is here apparent. The cases, few in number, due to central hemorrhage, embolism, etc., will be permanent, or will make only partial recoveries. How far central inflammatory affections, such as encephalitis and myelitis, will improve, can only be determined by the severity of the symptoms and the lapse of time. Cases of uncomplicated neuritis are usually of hopeful prognosis, although judicious treatment is of great importance, and the paralyses may persist for a long time. The numerous cases of multiple neuritis or irregularly distributed palsies which have been so often referred to, and which, for want of a better name, may be

simply classed as toxæmic, present a favourable prognosis, even when they are apparently of a most serious type.

Special lines of treatment must, of course, depend upon the peculiarities of special cases. When a well-defined multiple or diffused neuritis is present, absolute local rest should be enforced until the signs of inflammation have subsided. The limbs should be splinted with sand-bags, and should be handled with the greatest care. The salicylates, iodides, and mercury should be used internally, but with caution. Hot douches to the limbs, and dry warmth between these applications, will be found very useful. Generally the treatment laid down in neurological text-books should be followed. The toxic or toxæmic palsies without pain and hyperæsthesia will do best on the internal administration of drugs like strychnine, arsenic, quinine, and iron. The presence of the rachitic or the strumous diathesis should always be taken into consideration, and, if present, cod-liver oil, iodine preparations, and nutrients, with fresh air, should be ordered.

In the chronic stages of these disorders the use of faradic and galvanic electricity, massage, Swedish movements, and systematic gymnastics, after the method commonly advocated for diphtheritic and other forms of infectious paralysis, should be persistently pursued.—*Journal of Nervous and Mental Disease*, July, 1892, p. 485.

16.—ON VERTIGO OF ARTERIO-SCLEROSIS.

By Archibald Church, M.D., Professor of Neurology in the Chicago Polyclinic.

It is only of late years that arterial changes have been given the importance in pathology and in clinical medicine that they deserve. The degeneration of senility, the modifications found in gout, rheumatism, chronic metallic poisoning, syphilis, and those associated with alcoholism, chronic nephritis, and many other serious maladies, make it imperative that we recognize at the earliest moment the presence of a change in the artery that may in many instances, in the early stage, be amenable to treatment, but which otherwise soon passes beyond the possibility of medical control. Atheroma is not here synonymous by any means. It is the pre-atheromatous condition with which we have to deal, and it is the vertigo symptomatic of that arterial fibrosis to which attention is directed. As a matter of demonstrable fact, this arterial state is widely and generally disseminated, in these cases, but the complexion of the disease varies with its local intensity. In some instances a contracted kidney, in others angina pectoris, in others the cerebral symptoms are the prominent feature, and of the brain symptoms the earliest is vertigo, and the last cerebral hemorrhage or dementia.

When a man, past the prime of life, without any previous serious illness, becomes suddenly faint, has a swimming in the head, a feeling of giddiness, of distinct gyration, of darkness and impending death—one or several of these sensations—he usually at once seeks advice in grave apprehension (sometimes well founded) of approaching cerebral hemorrhage, and usually gets a cholagogue cathartic, or is told that his stomach is wrong, and sometimes is told rightly. But cases are constantly presenting themselves in which such vertiginous attacks are happening at shortening intervals; the patient gives up his tobacco, his spirits, if he is a drinker, cuts down his meat, takes to some of the many waters recommended, has Turkish baths, and gains only moderate relief, or none at all. If he is carefully examined, he will probably present a well-defined tortuous frontal artery, a distinct arcus senilis, a strong, even a clanging, second

sound of the heart, sometimes reduplicated, and yield a sphygmogram indicative of increased arterial tension. The pulse may be abnormally slow or arhythmic, the urine scant, and a trace of albumen is not rare. He finds that exertion of a moderate degree precipitates the attack, that he cannot endure a temperature at all above the usual, and change of position from recumbency to the upright is the occasion of a "blur" or of giddiness.

The attack itself is, as already indicated, widely variable in different patients. A fulness and throbbing in the head, a feeling of heat in the scalp, and a blur before the eyes are usually mentioned, and at such times marked paleness is noticed, followed, as a rule, by considerable redness of the face. There is a desire to get in the open air, and badly-ventilated or close apartments are unendurable. An habitual smoker will sometimes find tobacco-smoke repugnant. In more severe forms, the patient may stagger, fall, or gradually sink to the ground; he cannot speak for a few seconds, though consciousness is rarely completely lost. The recumbent position is usually sought, or the patient clings to some object, and after a period of from five to twenty minutes the feeling passes away, leaving him rather languid, with an inclination to sleep, and usually mentally depressed and apprehensive. At first he attributes the attack to anything and everything that in his estimation can cause a departure from health, and usually establishes a close watch upon his diet, habits, and mode of life; is inclined to avoid exercise or exertion of any sort, fearing to precipitate an attack, or to go by himself on the streets—in short, becomes an invalid with hypochondriacal tendencies.

In a remarkable monograph on this subject, Professor J. Grasset, of Montpellier, divides the vertigo of arterio-sclerosis into three forms:—(1) Simple vertigo; (2) Vertigo with epileptiform crisis; (3) Vertigo with slow pulse and syncopal or epileptiform attacks. Some of the features of the slighter attacks, as already roughly sketched, undoubtedly suggest a similarity to mild epileptic seizures—for instance, the paleness of the face, the oppression and the final confusion, depression and tendency to sleep—but I have never encountered well-marked convulsive phenomena reasonably attributable to this cause.

With Huchard, Grasset is in some cases inclined to attribute acquired habitual extreme slowness of the pulse, which, in numerous reported instances, has ranged from twenty to forty per minute, or even less, to the effect upon the medulla of an arterio-sclerosis acting mechanically to lessen the blood-supply to the cardiac centres. As far as I have been able to ascertain, this hypothesis has, as yet, received no positive anatomic or experimental support, though it is seductively reasonable. The bradycardia is almost always marked by syncopal and vertiginous features, and arises in individuals predisposed to or actually the subject of marked arterio-fibrosis.

The diagnosis is often one of extreme difficulty, in spite of a hasty statement to the contrary by a recent American writer. I have known the symptomatic vertigo confused with Méuière's disease by a very competent specialist in nervous diseases; for it may, as in that particular instance, be of a systematised character—that is to say, marked by a sensation of falling in a given direction, or of being rotated in a constant manner to the right or left, and even associated with a suggestive stagger. If to this a little middle-ear catarrh is added, a diagnosis of aural vertigo might be easily reached, but a closer and somewhat wider examination will detect the integrity of the auditory nerve and the presence of the arterial fibrosis, with the underlying predisposition of alcoholic excess, syphilis, gout, rheu-

matism, chronic lead-poisoning, or other constitutional state of etiologic significance.

In the treatment, the basic element is the object of attack; and whatever this may be, potassium iodide will find an indication in the arterial change, which if recognised in its incipiency, can practically be controlled, providing the patient is manageable. It is the sheet-anchor, and from its exhibition in moderate doses of from thirty to ninety grains a day for a number of months, much benefit and often a substantial cure can be expected.

I am led to emphasise the importance of this vertigo because it is a very early symptom of a condition that, neglected, leads to distressing and even fatal results, and which unrecognised is the source of endless anxiety and misery to the patient and of chagrin and disappointment to his medical attendant. If it were desirable, numerous case-records could be cited, but it is hoped that attention once having been called to a proper interpretation of the symptom it may be less frequently mistaken, and I would urge that the condition of the arteries and the heart be made an object of early and thorough investigation in every instance in which obscure vertiginous attacks, or a persistent giddiness, is present.—*Medical News*, June 25, 1892, p. 715.

17.—ON PERIPHERAL NEURITIS IN TYPHOID FEVER.

By Judson S. Bury, M.D., M.R.C.P., Assistant Physician to Manchester Infirmary.

[Dr. Bury gives a brief review of the more important published observations of paralysis after typhoid fever and also mentions two cases under his own observation, and speaking upon these goes on to say:]

These observations furnish abundant evidence that paralysis involving the whole or a portion of a limb sometimes occurs either during or subsequent to the pyrexial period of typhoid fever, and they illustrate the variations in the distribution of the paralysis. In a large proportion of the cases certain features are conspicuously prominent, and throw much light on the nature and situation of the lesion.

(1) The paralysis is usually partial in extent and degree. It may affect the whole of both lower limbs, or one limb either upper or lower, but as a rule it is limited to certain muscles or groups of muscles, and often is strictly confined to the territory of a particular nerve.

(2) The muscles are wasted as well as weak, and when tested with electricity show the partial or complete reaction of degeneration. In a few cases contractures of muscles are mentioned, but it is to be observed that they were found not in a well nourished more or less rigid limb, but in one where some at least of the muscles were distinctly atrophied.

(3) The paralysis is almost invariably preceded or accompanied by some form of sensory disturbance. Thus the patient suffers from intense pain, continuous, remittent, fixed or radiating, or he complains of numbness and tingling in the extremity, which subsequently becomes paralysed. Anæsthesia, partial or complete, is of frequent occurrence, and like the paralysis which it usually precedes, may be limited to the territory of a particular nerve.

(4) During the course of typhoid fever, the knee-jerks, as pointed out by Angel Money, are commonly exaggerated, and there may be ankle clonus. Gowers refers to excessive knee-jerk and foot clonus in association with paraplegic weakness in patients seen some months after the fever; and in the case of the man under my own care referred to above, there was

exaggeration of the knee-jerks, together with paraplegic weakness and anæsthesia. But, as a rule, judging from the reports in which the reflexes are mentioned, paralysis of the lower limbs is associated with diminution or loss of the knee-jerks.

The peripheral paralyses, then, which occur in association with typhoid fever are, for the most part, of the atrophic variety—that is, the muscles not only become weak, but they undergo a progressive atrophy, and give the reaction of degeneration to electricity. An atrophic paralysis testifies to a lesion situated in some part of the lower segment of the motor tract —that is, the motor nerve fibres or their nuclei of origin. Now while it is probable that in a few cases the muscular atrophies which follow typhoid fever depend on an anterior poliomyelitis, and that a condition similar to that of infantile paralysis is produced, the presence of sensory disturbance in the vast majority of cases shows that the lesion, if in the cord at all, is not limited to the anterior horns, or involves both the anterior and posterior roots, or the mixed peripheral nerves. The absence of spinal tenderness, of girdle pains and of disturbance of the sphincters, speaks much against an affection of the spinal cord or its roots, while the initial sensory disturbance, succeeded by a limited paralysis having a slow progressive march up to a certain degree, which varies according to the severity of the case, the paralysis then slowly receding and ultimately, as a rule, completely disappearing, are points strongly in favour of an affection of the peripheral nerves. Sensory disturbance is indeed one of the most distinctive features of typhoid paralysis; the pains are frequently severe enough to prevent sleep, and loss of skin sensibility may be associated with hyperæsthesia of the muscles, leading to painful contractures, just as in cases of alcoholic paralysis. Hyperæsthesia of the skin or muscles and neuralgiform pains may exist alone and not to be followed by any detectable weakness or wasting of muscular tissue.

Having relegated, with a high degree of probability, the majority of post typhoidal paralyses to lesions of the peripheral nerves, we have still to inquire whether the neuritis is the result of accidental circumstances attending the fever, or whether it may be regarded as a direct result of the typhoid virus. Now, in some of my collected cases, the paralysis, both sensory and motor, is limited to the parts supplied by a particular nerve, and in these it may be supposed that the neuritis is caused, not by a poison brought to the nerve by the blood or lymph, but by a local injury resulting from pressure or stretching of the affected nerve at a time when its nutritation is defective, owing to the general weakness left by the fever. The theory of local injury, for the explanation of many cases, at least, is adopted by Dr. Gowers, but without denying that it may be a potent factor in some cases there are not wanting considerations which tend to show that the cause of the neuritis, in most cases, is to be found in some kind of poison conveyed by means of the blood to the affected nerves; for even when the chief functional disabilities are limited to one nerve territory, there are frequently slight indications of a more widely distributed disorder. These remarks may be illustrated by a brief reference to the three cases of ulnar paralysis described by Dr. Handford, which the author seems inclined to attribute to a local injury. "In the first and last cases," says Dr. Handford, "the patients were accustomed to lie 'curled up,' with the elbows sharply flexed, for days together, and each chiefly on the side eventually affected. It is quite possible that thus a neuritis from over-extension was set up, and that the earlier numbness and tingling were disregarded during the delirious condition. And further, I can hardly conceive a more favourable condition of tissue malnutrition than these two cases presented."

But with regard to his second case, the author says: "His attack of fever was not much above the average in severity; he had no throat affection, no great loss of flesh, and lay always on his back, with the arms generally extended." So that it is difficult to see how the theory of overstretching by persistent flexion would apply in this case, and even in one of the two severe cases, in addition to the ulnar paralysis, other notable symptoms were present which demand explanation, and which could not be readily acounted for by the theory of local injury. "For some weeks past," says Dr. Handford, "there has been *tenderness of the toes* of both feet, so that the toe nails could not be cut on account of the pain it caused in the nail bed and in the pulp at the end of the toes." "In three other cases recently," he continues, "I have met with this condition of pain in the toes, and in one of them in the arms also. In one instance the tenderness of the feet was so great that they had to be protected from the pressure of the bedclothes by a cradle. But in none of them was it followed by muscular wasting or definite loss of sensation, so far as I could detect."

From a consideration of the preceding observations we are inclined to think that a multiple neuritis, initiated by the virus of typhoid fever, and frequently present in this disease, is not an unreasonable assumption. In one set of cases we may suppose that the action of the poison on the nerves is too slight to give rise to outward manifestations, or that these are masked by the general symptoms of the fever. In another set of cases the toxic influence on the nerves appears to be revealed by a series of irritative phenomena, such as neuralgic pains, cutaneous and muscular hyperæsthesias, exaggerated reflexes, and cramps and contractures of various muscles; while in a third group of cases the presence of an atrophic paralysis, its distribution, progress, and associations leave little doubt on the mind of the observer that he has to deal with a genuine parenchymatous neuritis, and frequently with one of wide distribution throughout the body.—*The Medical Chronicle*, June, 1892, p. 155.

DISEASES OF THE ORGANS OF CIRCULATION.

18.—THE DIFFERENT FORMS OF CARDIAC PAIN.

By SAMUEL C. CHEW, M.D., Professor of Medicine in the University of Maryland, Baltimore.

Cardiac pain is a symptom belonging to several affections that differ from each other in their nature and pathology. These maladies have all the common property of pain, varying in degree and seated apparently or really in the heart.

This kind of pain is found as a prominent symptom principally in three different forms of disease of the heart; and I desire to refer briefly to these from a clinical rather than from a pathologic point of view.

The first of these, and the one in which the pain exists in the most intense degree, is angina pectoris, true angina with increased arterial tension, occurring in paroxysms, and most frequently associated with aortic or coronary disease or with fatty degeneration of the heart. As the name of this affection implies, the pain is of the very essence of the disease itself. In severe cases it is nothing less than a mortal agony—an agony from the very intensity of the pain, and a mortal agony because, as testified by many sufferers, the pain is attended with a sense of impending dissolution. Nothing can better describe a paroxysm of angina than words used by a

non-medical writer, and without reference to this disease, in which he speaks of "a sense of ruin, which is worse than pain." As recorded by Dr. Latham from his own observations, it is, "a suffering as sharp as anything that can be conceived in the nature of pain, including something which is beyond the nature of pain—a sense of dying." Keeping in mind this element of the paroxysms, I think Professor Flint's criticism, that "Heberden's term signifying strangulation has but little pertinency in this application of it," is, with all deference to his high authority, hardly justifiable: for Heberden speaks of "the sense of strangling and anxiety with which the disorder is attended"—*angor pectoris intentans vitæ extinctionem;* and he seems to use the word angina with reference to these rather than to the pain alone: to the combination of anxiety and anguish found in the disease: words indeed that come from the same root as angina and bear witness to the accuracy of the term as Heberden first employed it.

The structural changes connected with true angina are in a very large proportion of cases those that produce cardiac ischæmia, especially insufficiency or atheromatous rigidity of the aorta, obstruction of the coronaries, or fatty degeneration of the heart. Any one of these changes may lessen the blood-supply to the heart-muscle; but only the first two, aortic insufficiency and obstruction, are diagnosticable with certainty by auscultation: we may suspect coronary obstruction or fatty degeneration, but we cannot during life prove their existence. Hence the prognosis of a case of true angina pectoris may be equally as grave when ausculatory examination yields a negative result, as when it discloses organic disease; for the cardiac ischæmia on which the disease may depend may be brought about by undetectable coronary obstruction or fatty change. On the other hand, post-mortem examinations not infrequently show great sclerosis of the coronaries, and also fatty degeneration, in cases in which the symptoms of angina pectoris had not been present during life; so that it is difficult to determine what is the immediate cause of the angina, *i. e.*, what is the exact causative relation of the lesions to the symptoms.

A very common factor in the production of a paroxysm, or at least a very common attendant upon the paroxysms in the earlier attacks, is a great and sudden increase of arterial tension. Whatever be the underlying organic cause, the immediate action seems to be purely neurotic, just as it is in Nothnagel's vasomotor angina, coming on after exposure to cold, which produces apparently a spasm of the peripheral arterioles and a sudden feeling of tension or severe pain about the heart; or there may be some unknown reflex influence by which the arterial constriction and increased tension are brought about and the paroxysm excited.

It was this sudden increase of arterial tension that led Lauder Brunton, by a happy inference, to try the effect of amyl nitrite in angina. The action of this remedy in causing flushing was first observed by Guthrie, and its power of lessening tension was first shown by Gamgee, but the application of its power to the particular form of increased tension found in angina pectoris was first made by Brunton, with the well known results of giving deliverance and safety, at least for a time, to many that have seemed ready to perish. In view of the many cases of angina in which great and prompt relief has been given by this agent, I cannot but feel surprised at the opinion expressed by several recent writers that it is doubtful if there are any remedial agents that have the power to arrest or very greatly relieve a paroxysm of the disease. No therapeutic results seem to me more obvious and satisfactory than those that are often witnessed from the use of this remedy in angina: and I fully agree with Professor F. C. Shattuck, that the value of the nitrates in angina is

greater than Strümpell, the author upon whom he comments, would seem to admit.

A second form of cardiac pain closely allied in character to the one already considered, and yet distinct from it in its pathologic relations and generally less intense in type, is encountered as a complication of some cases of chronic nephritis, chiefly the contracted kidney or interstitial nephritis. In this class of cases the changes in the kidneys and sometimes in the heart are parts of a general arterio-sclerosis, and the pain in the heart is probably the expression of resistance to the blood-flow through the arterioles.

If it be asked why, with a constantly present mechanical cause, the attacks should be paroxysmal, with intervals between them, it may be said that this is a law of various neuroses, such as neuralgias dependent on pressure, or epilepsies due to exostosis or depression of bone, or spasmodic asthma due to nasal polypi—all conditions in which the causes are constant and the neurotic seizures paroxysmal. In this form of cardiac pain, the attacks may be frequent, but they are in general less severe (such at least has been my experience) than those of true angina connected with heart lesions. I have described several such cases in a paper read before this Association at its meeting in 1888. In all of them the symptoms of chronic interstitial nephritis existed, and in one of them, in which the painful attacks were most severe and most like those of true angina, post-mortem examination disclosed not only chronic contracted kidneys, but occlusion of the coronaries. It is in cases of this kind that potassium iodide in large doses, as advised by Huchard, may sometimes prove beneficial by lessening the arterio-sclerosis. In the painful attacks, a certain degree of relief may be obtained from amyl nitrite, which, though it cannot reach the organic cause of obstruction, may lessen an incidental increase of tension.

After all, these two forms of cardiac pain may be essentially one in their pathology—both being dependent upon sclerotic changes. Regarded clinically, however, one group is composed of cases in which there are detectable or suspected organic heart-changes, with no kidney complications; while the other group consists of cases in which the kidney-symptoms are always prominent, while the heart may or may not be involved.

A third form of cardiac pain is found in dilatation of the heart, and is perhaps due to tension and stretching of the nerves in the heart-substance. Traube held that the pain of true angina is due to this cause. Whether it be so or not, the subjects of cardiac dilatation frequently experience pain about the heart, greater in degree in general in proportion to the rapidity with which the dilatation is induced.

Pain may thus arise from any form of valvular disease of the heart that leads to dilatation; but of the various valvular lesions it is perhaps found most commonly in aortic insufficiency, which is likely to occasion rapid dilatation of the left ventricle, from the pressure of the backward current of blood from the aorta, at the same time that the left auricle is sending its supply into the ventricle. It is to be remembered, however, that aortic insufficiency may give rise to some cardiac ischæmia by the imperfect filling of the coronaries; and thus there may be two causes of the pain, the ischæmia and the intra-ventricular pressure. Which has the larger share in causing the pain, it may be impossible to say.

If dilatation be extreme and acutely developed, free venesection may be the best means not only for relieving pain, but also for saving life.

Looking at all three of these forms of disease, and endeavouring to co-ordinate them as to their cause, it is quite possible that the chief factor

in the production of pain common to all of them is pressure brought to bear upon the cardiac nerves or upon the cardiac ganglia themselves. The connection between these ganglia and the cervical and brachial plexuses gives a ready explanation of the extension of the pain to the arms that may occur in any form of cardiac pain. In the first or strictly paroxysmal form, true angina, the pressure may be occasioned by the sudden tension of the arterioles: in the second form, by the general sclerotic state of the vessels; and in the third form, with dilatation of the heart, by the attenuation of the heart-walls.—*Medical News*, June 18, 1892, p. 690.

19.—ON THE RHEUMATIC CARDITIS OF CHILDHOOD.

By Octavius Sturges, M.D., F.R.C.P., Physician to the Hospital for Sick Children, Great Ormond Street.

[We are compelled to omit here all but one of Dr. Sturges's tables of cases.]

The endo-pericarditis associated with rheumatism in children is by far the commonest of all the cardiac affections of early life, claiming no less than half of the whole number. The other half, mainly pericarditis, includes also a few examples of chronic valve disease, and a yet smaller number of recent endocarditis apart from pericarditis. Thus the child's heart affections (congenital defects being excluded) are cast in two great divisions: one, peri-endocarditis, which is rheumatic, the other, peri-carditis, owning a variety of causes, recent endocarditis by itself being so rare as hardly to count in the enumeration. But in giving to rheumatism a full half-share in the total of children's heart disease less than the truth is expressed unless a provision be added. Heart disease in the strictest sense is almost wholly rheumatic in these subjects. What remains applies to the heart's investment and is an accompaniment of morbid conditions wherein the pericardium sympathises, not with the endocardium, but with the neighbouring serous membrane of the lung. The two divisions are further distinguishable in the diathesis, the age, and even, to some degree, the sex that belongs to each. When, for example, we classify children's diseases as tuberculous and non-tuberculous, such a grouping applied to the heart would detach to the tuberculous side a large number of examples of pericarditis, but hardly one peri-endocarditis. Cardiac affections in the strict sense are almost confined to non-tuberculous children, and almost always rheumatic. The peri-endocarditis of early life is in fact accurately and sufficiently described as rheumatic carditis. Similarly in regard to age. Such share as belongs to the tuberculous and is mainly pericardial will concern infants and young children. At a somewhat later age but still early comes pericarditis, related to pleurisy, to empyema, to pneumonia, sometimes to diphtheria, and septicæmia. Later yet—that is to say, with the elder children—rheumatic peri-endocarditis (or carditis) becomes conspicuous; and last of all, when childhood is approaching its term, we get some glimpse of those after-results of cardiac inflammation which occupy so large a place in the heart disease of adult life.

As my authority for these statements and for what is to follow I take 100 cases of heart disease examined post-mortem at this hospital between June 28, 1881, and April 3, of this year (1892)—that is, for nearly eleven years. The cases are taken consecutively, congenital disease alone being omitted.

One Hundred Fatal Cases of Heart Disease examined Post-mortem during Eleven Years.

Rheumatic (boys, 22; girls, 32)	54	100
Non-rheumatic (boys, 22; girls, 24)	46	

Ages of the Rheumatic.

Between two and four years	2	54
" four and six years	4	
Six years	6	
Between six and twelve years	42	

Ages of the Non-rheumatic.

Four years and under	32	46
Between four and six years	5	
Above six years	8	
Age omitted	1	

Of the non-rheumatic the great majority are infants and young children, while in the rheumatic the order of age is reversed, and it is the elder children that suffer most. The great majority of these are between six and twelve, pretty equally distributed. Below six there are but six children, and the two youngest of these are open to some doubt. As regards sex, it will be seen that the preponderance of girls is due almost solely to the rheumatic division. This extra liability to rheumatism on the part of females is, I believe, generally conceded, although in later life the greater exposure to weather on the part of men tends to obscure it.

The non-rheumatic heart affections of children, as has been intimated, are insidious in character and mostly consecutive to other diseases whose natural course they hardly modify. Thus purulent pericarditis sometimes accompanies empyema, but commonly remains undiscovered until death. Pericarditis may arise in the course of general tuberculosis, but it is a secondary and, in the circumstances, even an unimportant event, while the pericarditis of pneumonia, although sometimes discoverable in life, affords no particular indication for treatment and no great aid to prognosis. Of my forty-six non-rheumatic subjects empyema claims eleven (all of them children under six), tubercle has ten, diphtheria four, and pneumonia three. The rest are variously associated with meningitis, nephritis, and septicæmia.

Endocarditis, both new and old, occurring by itself is, as I have said, very rare. In the entire series of 100 cases it is found in but six, three rheumatic and three non-rheumatic. In two of the three reckoned rheumatic excess of fluid was found in the pericardium; the third was a case of old mitral disease in a child over eleven. In this case only was the pericardium normal. Of *recent* endocarditis, therefore, there is no single example amongst the rheumatic without participation in some degree on the part of the pericardium. As regards the three non-rheumatic examples of endocarditis, one is a case of dying of diphtheria with "old thickening of the mitral," but no mention of the pericardium; the second is the case of a new-born child dying of pyæmia, and showing post-mortem "vegetations upon the mitral and tricuspid valves," not further described; the third is the solitary example of the whole six, and, moreover, it is the solitary example of the entire 100 cases exhibiting recent endocarditis of the mitral valve with no pericarditis and no excess of fluid in the pericardium. Now observe, this same case was one of acute chorea, and it represents, as I believe and have elsewhere tried to show, the condition

of the heart proper to chorea apart from rheumatism. It is rarely observed, indeed, because fatal chorea is rare, and our post-mortem experience of it relates chiefly to the subjects of rheumatic heart disease.

The general characters of the child's articular rheumatism with which carditis so often concurs, are well known: slight fever, indistinct and fugitive joint affection, absence of prostration or of any abiding sense of illness. Such symptoms, though they may cover extensive heart inflammation, are not of a kind to excite the alarm of parents and not seldom pass unnoticed. What I would point out is the commonness of recurrence in child's rheumatism, or rather, let me say, the fact that the younger the subject the greater the liability to recurrence and the more closely are successive attacks crowded together. A child may encounter rheumatism once and, it may be, carditis therewith, without permanent injury; but recurrent rheumatism—rheumatism that begins early and recurs often—is certain to cripple the heart, insomuch that by far the greater number of fatal cases, perhaps all did we but know, are of that kind.

The statement may need analysis. In the fifty-six cases of fatal rheumatic carditis on which I am now commencing, thirty-five of the number had certainly had rheumatism more than once. In five others the rheumatic attack had been unusually prolonged, or, as is more probable, if we may trust our common clinical observation, a succession of attacks happening near together seemed like one. There remain sixteen, or, omitting two cases without history and three where the history is doubtful, eleven wherein fatal heart disease resulted, so far as the history could be trusted, from a single rheumatic attack of no long duration. A further analysis of this remnant of eleven out of fifty-six is noteworthy. In four of them the existence of aortic disease and of subcutaneous nodules made it at least likely that a previous rheumatic attack had passed unrecognised as such. In two, if not in three (there is some uncertainty), the children died, not of heart disease, but of intercurrent affections. Thus a very small proportion of the fifty-six, some four or five, can safely be counted as victims of heart disease due to a single rheumatic attack. Nor would I surrender even these in view of the notorious fact that the joint pains of children when really rheumatic are not always assigned to that cause. It is certain that the vast majority of the fatal cases have suffered rheumatism more than once. It is not improbable that it is invariably multiple rheumatism that fatally effects the heart.

It is in the later attacks of rheumatic arthritis that physical signs in respect of the heart are most reliable. In a first attack there may be tumultuous action, mitral bruit becoming perhaps appreciably presystolic; exocardial sounds in great variety; reduplicated second, and even diastolic murmur at the aortic cartilage; but one and all of these morbid signs may disappear, and the integrity of the heart be maintained. Yet we cannot predicate that such will be the case until some time has intervened without return of rheumatism. With a second, and still more with a third rheumatic attack, there is far greater probability of permanent change and the establishment of the two main factors of organic disease in childhood—namely, mitral stenosis and pericardial adhesion. Apart from this consideration of probability derived from repeated attack, I do not know what physical signs there are conclusive of structural heart disease in children except prolonged blowing murmur, thrill and change in the heart's size and shape. Thus the chief contrast between the child and the man would be this—that in the former pericardial signs are far more frequent, while endocardial signs remain for a somewhat longer space of time of doubtful significance.

Nevertheless, the judgment we may form from physical signs is, in fact, less precarious than it would seem from these considerations taken alone. It must be added, first, that in rheumatism peri- and endo-carditis almost always go together, so that the presence of the latter may be inferred from the presence of the former; and, secondly (whether the information conveyed be precise or not is a point I am coming to), it is beyond doubt that pericardial sound in the circumstances we are considering, signifies pericardial inflammation. However uncertain, therefore, the interpretation of recent endo-cardial murmurs, their character may be safely judged by the company they keep. The real difficulty is less in diagnosis than in prognosis. We may be certain that rheumatic carditis exists; we may, and in recent cases we often must, be uncertain whether such carditis will permanently cripple the heart.

I proceed now to a further point in regard to the diagnosis of rheumatic carditis and one which finds ample illustration in the table, though it leads to conclusions not a little surprising. It is this. Admitting that pericarditis has distinctive physical signs, how far may these be relied on to indicate from day to day the precise state of the pericardium, especially as regards adhesion? In the acute rheumatism of adults large trust is placed in physical signs as faithful witnesses of the progress and termination of pericarditis. The character, duration, and extent of friction rub, its advent, disappearance, and reappearance are all carefully noted and appraised, insomuch that when convalescence is reached a more or less confident opinion is expressed as to the probability of pericardial adhesion. Rarely, however, does the correctness of such opinion have to bear the test of actual inspection. Adults with acute rheumatism seldom die then and there. But the opportunity of verification thus denied to us in adults is afforded quite liberally by children—the opportunity, I mean, of seeing the physical condition of the inflamed pericardium so close to the time of hearing the noise it makes that sight and sound may safely be regarded as referring to one time. A large class of children, as I have said, are the subjects of multiple attacks of rheumatism in quick succession, each of which, while sparing or almost sparing the joints, will be attended by fresh carditis. After a number of such attacks the heart will sometimes very rapidly give in and the patients die of dyspnœa or pulmonary inflammation. It is of such children that my present collection is mainly composed, and to them I now appeal, in considering to what degree exocardial sounds inform us accurately of the condition of the pericardium.

For some years past it has not been my frequent experience to find post-mortem, notwithstanding that friction rub had been audible shortly before, sometimes loudly and over a large area, yet that pericardial adhesion was present, and in some cases extensive as well as firm. I at first inclined to the belief that such adhesions formed very rapidly in children. Further examination, however, compels the conclusion not only that to-and-fro rub may concur with extensive adhesion, but also that a great variety of exocardial sounds, variously described as "squeak," or "creak," or "scrape," are not inconsistent with intimate union of visceral and parietal pericardium. With children dying after repeated rheumatic carditis, rubbing or no rubbing, it is the rule to find adhesion and the exception to find the heart free; while at the same time it is the rule to hear exocardial rub and the exception to hear none.

I will now estimate the condition of the pericardium after death in relation to its living signs. The fifty-four cases of rheumatic carditis I am now dealing with may be divided into two classes, one where pericardial sounds were audible, the other where they were absent. The first, or audible class

may be again subdivided into (*a*) cases where exocardial sound is easily explained owing to the pericardium being roughened or lymph-covered yet not adherent and (*b*), strange to say, a larger class, where the existence of exocardial sound is less easily or not at all explained owing to the fact of pericardial adhesion in various degree, sometimes extensive and firm.

It thus appears not only that very extensive adhesion will often permit very obvious exocardial sound, but also that we are not without examples of rough and lymph-covered yet not adherent pericardium, such as *ought*, as one is tempted to say, to yield sound, yet in fact yielding none. If we add that friction sound may possibly be present where there is no lymph and no roughness, and this is generally admitted, the simple teaching of the text-books that the successive stages of pericarditis may be followed by the ear from first to last seems to fade away with other delusions of youth.

Upon the evidence I take it for certain, explain the facts as we will, first, that pericardial adhesion does not prevent exocardial rubbing; and secondly, that the presence of such adhesion in fatal cases is much commoner than would be supposed, judging from physical signs alone. Post-mortem observation, however, does not fully reflect the ways of life. What is true for those that die is not necessarily true for those who recover. Pericardial adhesion, in other words, may be a more sinister occurrence than we suppose, making sometimes the difference between living and dying. That wider question cannot be discussed with our present material, nor is it, indeed, determinable until the bearing of physical signs upon anatomical states as regards the pericardium has been more fully investigated and defined.—*The Lancet*, August 27, 1892, p. 469.

20.—ON THE PROGNOSIS OF VALVULAR DISEASE OF THE HEART.

By JAMES A. LINDSAY, M.D., Physician to the Belfast Royal Hospital.

[Dr. Lindsay concludes an analysis of fifty cases of valvular disease of the heart with the following remarks:]

I wish to invite the attention to a few general problems of prognosis in the class of affections under consideration. First, what is the relative gravity of the four principal valvular lesions of the heart? We may answer, I think, with confidence, that pure aortic obstruction is the least serious, pure aortic regurgitation the most serious, and that affections of the mitral valve are intermediate. Opinions have differed much regarding the relative gravity of mitral obstruction and mitral regurgitation. On the whole I incline to the view of Drs. Bristowe, Wilks, Peacock, and Sanson that the prognosis is somewhat more favourable in obstruction, as it has seemed to me that compensation is better maintained in this lesion than in regurgitation. I would point out, however, that, as the majority of the cases of mitral obstruction which come under observation are found either in children or women, whereas mitral regurgitation is common in both sexes and at all ages, the comparison is hardly a fair or an instructive one.

I pass on to consider a much more arduous problem. Given a case of, say, mitral regurgitation, can we determine with any approach to accuracy the probable duration of life? It is now quite certain that these cases may live for ten, twenty, thirty, or forty years, so that in fact their serious defect may not shorten life at all; or, on the other hand, they may hardly live so many weeks or days. It becomes a most interesting and vitally important question to determine how far we can draw the line between the two classes of cases. Perhaps I shall best solve the problem I have propounded by giving the substance of the teaching of Sir Andrew Clark, Professor Gaird-

ner, Dr. Clifford Allbutt and others who have defined for us with considerable precision the cases of mitral regurgitation which may be reasonably expected to survive for many years. Sir Andrew Clark enumerates the following conditions as enabling us to speak favourably of the prospects of life in such cases:—(*a*) General good health; (*b*) just habits of living; (*c*) no exceptional liability to rheumatic or catarrhal affections; (*d*) origin of the valvular lesion independent of degeneration; (*e*) existence of the valvular lesion without change for over three years; (*f*) sound ventricles of moderate frequency and general regularity in action; (*g*) sound arteries with a normal amount of blood and tension in the smaller vessels; (*h*) free course of blood through the cervical veins; (*i*) freedom from pulmonary, hepatic, and renal congestion.

I need hardly point out that the causes of mitral regurgitation presenting all these conditions are very exceptional indeed; but they do occur sometimes, and it is most important that we should be able to recognise them. One of the conditions—viz., that the lesion shall have existed without change for over three years—is obviously a point very difficult of determination, and impossible to establish on a first examination. Hence, it is only after we have had a case of this kind for some time under observation that we are justified in speaking hopefully of the prospect of life. There is one class of cases that calls for care and discrimination as regards prognosis. I mean where we have some regurgitation through the mitral valve as the result of sudden dilatation of the left ventricle and independent of actual structural damage to the valve. Some years ago a gentleman consulted me under the following circumstances. He had enjoyed good health until a few days previously, and had never had rheumatism. A few days before his visit to me he had undergone severe and unusual physical strain and had been seized with sudden and severe dyspnœa, which continued up to the time of my examination. I found the heart acting violently, but there was no evidence of hypertrophy. Auscultation revealed a loud bellows murmur at the apex and heard over a wide area. There was no pulmonary congestion, dropsy, or other evidence of systemic engorgement, and the only symptom complained of was the dyspnœa. I formed the opinion that in all probability the case was one of acute dilatation of the left ventricle from overstrain, and that while the prognosis was not free from anxiety, the prospects of recovery were good. I accordingly spoke encouragingly; ordered complete rest and tonics. The case rapidly improved, and in a short time all the troublesome symptoms had disappeared. I have not seen the patient for some time, but have lately heard that now, at the expiration of several years, he remains perfectly well. We must remember that all cases of acute dilatation of the left ventricle do not pursue this favourable course. Sometimes dropsy and the other signs of cardiac failure rapidly supervene and the patient dies, but the prognosis is essentially different from that of organic valvular disease. The particularly loud murmur present in this case leads me to remark that there is no greater error in dealing with cardiac disease than to regard a loud murmur as necessarily indicating a serious lesion. As a matter of fact the rule is rather the other way. In regurgitant mitral disease the loudest murmurs are produced by a small amount of blood being strongly forced through the valve by a vigorously contracting ventricle. The worst sign of all is where a loud murmur gradually becomes feebler and eventually disappears owing to failing contractile power of the ventricle. A murmur may, of course, also become feebler owing to increasing competence of the valve. The clinical signs will serve to differentiate the two cases.

There seems no doubt that occasionally, though rarely, organic valvular disease may entirely disappear. The best observers are agreed upon this point. There is no doubt whatever that the cardiac murmurs often present in chorea pretty frequently disappear, and everything seems to point to the conclusion that these murmurs are organic and not functional. The topic of prognosis in valvular affections naturally suggests the question whether any of the subjects of this affection may be fitly passed for life insurance at some increased premium. Most offices refuse positively to accept any applicant who has any form of cardiac disease; but this is not an absolutely universal rule and the point may arise with any of us. Sir Andrew Clark and Dr. Clifford Allbutt are both of opinion that certain cases in the class under consideration may be safely selected for insurance at some heavy increase of premium. The cases recommended for such a course are such as those previously described as affording grounds for a hopeful prognosis. Cases of mitral regurgitation, which have remained *in statu quo* for several years, where there is no change in the ventricle, no accentuation of the pulmonic second sound, no evidence of embarrassed circulation, and no subjective symptoms, are suggested as fair subjects for insurance at certain rates. Dr. Clifford Allbutt advises that such cases, if accepted, should be put upon the early payment system, so that all the premiums should be paid by the age of thirty or thirty-five. I confess I should hardly feel at liberty at present to recommend for insurance any applicant who presented the signs of organic valvular disease of the heart, though I have little doubt that there will, in the early future, be such an advance in precision of prognosis as to permit of this being done in a manner equitable alike to applicants and to the insurance companies.—*The Lancet*, September 24, 1892, p. 707.

DISEASES OF THE ORGANS OF RESPIRATION.

21.—ON TUBERCULOSIS OF THE PHARYNX AND LARYNX.

By P. McBride, M.D., Laryngologist to the Edinburgh Royal Infirmary.

In the pharynx proper I have met with at least two distinct varieties of tuberculosis, always associated with pulmonary disease, and characterised by marked pain.

In one form the palate and, indeed, the whole pharynx are extremely pale, here and there ulcers are seen of varying size: these may be situated on the tonsils, the posterior pharyngeal wall, and the soft palate. These ulcers are all shallow, covered with muco-purulent secretion, and their floors have a tendency to produce pale pink granulations. In advanced cases the whole posterior wall of the pharynx may be converted into one large ulcerating surface, the yellow base of which is relieved by protruding granulations. The second form of pharyngeal tuberculosis I have met with only once, in a lady who, while showing little evidence of pulmonary disease, suffered from loss of voice. Examination of the larynx demonstrated marked œdema of the epiglottis and the characteristic pyriform swelling of the right ary-epiglottic fold. At the first visit the uvula and right laterial fold of the pharynx were œdematous of a greyish colour, like that seen in tubercular infiltrations of the larynx, and studded with small yellow nodules, which I assumed to be miliary tubercles. Some six months later, after a residence at Bournemouth, the pharynx was rather better, but the larynx remained as before.

Of lupus of the pharynx, either primary or associated with a similar condition of the larynx, I have seen several cases. In these the area chiefly or entirely attacked has commonly been the soft palate. This part is studded over uniformly with small red nodules, but I have never seen ulceration to any marked extent, although I have observed it where the hard palate is involved. The lupus nodules in this situation seems to me to be of much firmer consistence than are those found about the anterior nares. From the description I have attempted to give it will be evident that lupus and tuberculosis can be clinically distinguished from each other in this region. As to the frequency of tuberculosis and lupus of the pharynx, both are extremely uncommon, and I am not aware that any statistics exist as to the relative numbers of observed cases of each disease. Judging from my own experience, I should say that one is met with as often as the other.

If we now pass to the larynx we find a very different state of matters. Here, as every one knows, tuberculosis is quite common, while lupus is relatively rare. It is true that observers who have not confined themselves to laryngeal clinics have found the larynx affected in from 5 to 9 per cent. of lupus patients where these were systematically examined; notwithstanding these results it must still be admitted that laryngeal lupus is far from common.

In the cases I have observed the epiglottis, the false cords, and the ary-epiglottic folds have been attacked. These parts showed a nodular infiltration of red colour, and there seemed again to be the same absence of superficial ulceration. The disease differs from phthisis laryngea in almost every detail. The colour of the thickened parts is red in lupus, it is usually pale in phthisis; the surface is commonly nodular in one (lupus), it is smooth in the other. The course of typical tuberculosis is rapid, *i. e.*, the patient generally dies within two or three years. It is slow in lupus; thus I heard recently that a patient whose larynx presented marked lupoid changes in 1883 is still in good health, and that her throat is better than it was. Lupus has often little or no tendency to superficial ulceration, while in tuberculosis this tendency usually soon shows itself. I have, I think, said enough to prove that it is not only perfectly fair but necessary to make a clinical distinction between lupus and tuberculosis of the larynx.

Let us now consider how far we are entitled to draw any general deductions from the facts before us. We have seen that the skin is but rarely attacked by true tuberculosis, but frequently by lupus; we have further seen that in the larynx tuberculosis in its typical form has an immense numerical preponderance over lupus. Further, it is probable that lupus is distinctly more common in the mucous membrane at the nasal orifices than tuberculosis, and that in the pharynx the two conditions are about evenly balanced. I doubt, however, whether without exact statistics it would be right to attach too much importance to the two last-named points. Without them, however, merely considering the skin on the one hand and the larynx on the other, we have enough evidence to suggest that the tendency of the same organism to produce a lupus manifestation in one situation and a tuberculosis in the other is probably due to anatomical differences in the parts affected. The nature of these differences is, however, anything but clear. Other factors besides histological distinctions probably play a part, for the mucous membranes of the upper air passages are under physical conditions which are by no means similar to those of the skin. Although the presence of lupus or tuberculosis in mucous and dermoid surfaces respectively are, from the consideration of the facts

adduced, in all probability to be accounted for on anatomical grounds, yet there are difficulties in accepting this view as even a sound working hypothesis. Individual predisposition must also be admitted to play some part, for on what other supposition can we account for the comparatively common occurrence of laryngeal lupus in those who are the victims of the cutaneous malady, while primary laryngeal lupus or lupus secondary to pulmonary disease is admittedly of extreme rarity? With regard to the question of position as influencing the occurrence of lupus or tuberculosis in its more typical form, it is of interest to note that lupus has rarely, if ever, been known to extend into the trachea. I am not aware whether any lesion corresponding in its macroscopic characters to lupus has ever been described by pathologists as occurring in the respiratory tract below the upper portions of the windpipe. In the digestive and deeper genital mucous membranes I do not know that such a disease has been found; it has once been recorded as observed in the middle ear, while it has not been met with in internal organs. Of course, in considering this aspect of the question it must be remembered that the difference between lupus and tuberculosis is chiefly macroscopic and clinical, and that therefore the differentiation could not be carried out in parts not accessible during life. I need hardly say that I have consulted older works written at a period when the two conditions were considered as distinct, with a view to the elucidation of the question just raised; but even in these (edition of Klebs' *Pathological Anatomy*, 1873) I find no reference to lupus of the parts referred to, *i.e.*, internal viscera. As a rule, the macroscopic difference between lupus and tuberculosis of the mucous membranes of the upper air passages is so marked, that looking at the question from a purely clinical point of view, it is extremely difficult to believe in the identity of the two diseases. I am, of course, aware that ulceration has been described by many authorities (*e.g.*, Neumann, *Atlas der Hautkrankheiten*) as a common feature of lupus of mucous membranes. That it may be so I do not deny, but in that case my own experience has been of an exceptional nature, and, as before mentioned, it is my desire to introduce into this discussion rather what I have observed than to record the observations of others. The position I should be inclined to take up in regard to the ulceration of lupus in mucous membranes is as follows:—The parts affected by the infiltration are always irregular and thickened, therefore they are exposed to injury from contact with adjacent parts or extraneous substances; as a result of such injury ulceration may take place, but breach of surface is not a direct or early result of the diseased process as in tuberculosis. I have no desire to insist upon the accuracy of this view, but only to state that a comparatively limited series of clinical observations has inclined me to adopt it.

We have seen, then, that there is a marked clinical distinction between the two forms of disease as produced by the action of the tubercle bacillus. We have also seen that all recent observations have tended to show that this organism is responsible for both varieties. It remains to consider whether transition forms are met with. Again, relying merely upon my experience, it appears to me that such forms occur, but that they are of extreme rarity. So long as I could not either adduce or find described such transitional stages, it seems to me that a very serious link was wanting in the chain of argument which seemed to prove the identity of lupus and tuberculosis, although I am not prepared to say that these arguments would be invalidated even by the absence of intermediate conditions. —*Edinburgh Medical Journal*, August, 1892, p. 121.

22.—ON INTERLOBULAR EMPHYSEMA OF THE LUNGS.

By E. Markham Skerritt, M.D., F.R.C.P., Senior Physician to the Hospital, and Lecturer on Medicine at the Bristol Medical School.

Interlobular or interstitial emphysema of the lungs—by which is meant the presence of air in the interlobular and subplural connective tissue owing to rupture of air vesicles—is a condition to which very little practical importance commonly attaches, and it is therefore dismissed in a few words in the majority of textbooks. It is probably true that as a rule it gives rise to no definite symptoms or physical signs, but in exceptional instances it may prove of grave moment. I wish to direct attention to two such instances which have recently come under observation in the hospital; in the one pneumothorax resulted, and in the other severe pulmonary symptoms and subcutaneous emphysema were produced.

Case 1.—A boy, aged three years and nine months, was admitted with the following history: For six months he had suffered from a slight cough. One day, three months before admission, during a rather severe fit of coughing, he was suddenly seized with intense dyspnœa, the surface becoming much cyanosed. After this he had an illness described as "low fever," lasting about a week; he complained of pain in the epigastrium and shortness of breath, and his mother noticed that his heart was beating on the right side instead of the left. On admission, the heart's impulse was just inside the right nipple, and the mediastinum was displaced to the right border of the sternum; a tympanitic percussion note existed over the whole of the left side of the chest: the bell sound was easily obtained, but amphoric echo, metallic tinkling, and succession splash was absent. No râles were heard in the chest. The physical signs were, therefore, those of a pleural cavity full of air, not communicating with the lung tissue, and entirely free from the fluid that results from inflammation. On the insertion of a fine aspirator needle, the outer end being protected with lint soaked in carbolic lotion, odourless air escaped with each expiration, not great in amount, and gently, as if there were no marked intrapleural pressure. Further exploratory puncture with a hypodermic syringe proved that there was no fluid in the cavity. As a result of the tapping the heart came over to the left, but much air still remained in the pleura. Subsequently the side was repeatedly aspirated, with the view of exerting traction upon the collapsed lung. Nothing but air was at any time removed. The heart gradually regained its normal position, the lung expanded, and the signs of pneumothorax disappeared, though the process of recovery extended over several months.

If surgical conditions, such as fracture of ribs and direct wound of lung or pleura, are excluded, pneumothorax in children may result from tubercle, pneumonia with softening on the surface of the lung, gangrene of lung, decomposition of an empyema, and interlobular emphysema. In the case which I have just related I believe that it was due to interlobular emphysema, with rupture of the pleura and escape of the effused air into the pleural cavity, for there was no evidence of the existence of any other morbid condition, and the attack distinctly dated from a paroxysm of cough; and further, there was throughout a total absence of inflammation of the pleura, which is an acknowledged feature of pneumothorax from interlobular emphysema. An exceptional point in the case is the long persistence of the effusion. Usually air is rapidly absorbed when it has found its way either into an internal cavity or into the interstices of tissues, but here a simple pneumothorax brought about the same conditions as are produced by a persistent effusion of fluid; that is to say, displacement of

heart and compression of lung, extending over several months. In spite of the physical signs, the only hypothesis upon which this can be satisfactorily explained is that for some time a more or less continuous leakage of air into the pleural cavity took place; but if this was the case, it is remarkable that no inflammation was set up.

A word with regard to the treatment adopted. Thoracocentesis is not uncommonly needed in uncomplicated pneumothorax, almost exclusively to relieve the intrapleural pressure caused by the continued entry of air into the cavity. A hollow needle or fine trocar should be used, either with a tube attached to its outer end opening under an antiseptic solution, or, as in the present instant, simply with a piece of lint soaked in such a solution hung over it. I have seen puncture attended by the happiest results where death has been imminent from the intrathoracic pressure of the effused air. This patient, however, is the only one in whom I have ever found it necessary to use the *aspirator* in uncomplicated pneumothorax, with the object of exhausting the air in order to exert traction upon a collapsed lung. The instrument was used repeatedly for this purpose, and ultimately the expansion of the lung was secured.

Case 2.—This illustrates the occurrence of subcutaneous emphysema as the result of interlobular emphysema of the lungs. A boy, aged eleven, was admitted into the hospital with the following history: He had always been delicate; two years before the present illness he had had an attack of pleurisy on the left side; since then he had not seemed so strong, but no definite symptoms existed beyond a slight hacking cough. On the day of admission he came home from school complaining of headache, and cried with the pain; soon after he said he had a difficulty in breathing, which passed off and again recurred twice; the second time he was found gasping for breath and blue in the face. A medical man who was called in said that there was an obstruction in the trachea, and that the boy must go to the hospital to have the windpipe opened. On admission the patient was almost moribund and nearly insensible, the conjunctiva retaining only slight sensibility; the surface was cold and dusky, and the face was of a purplish-black colour. Respiration was slow, spasmodic, and gasping; the chest walls were nearly fixed, and the diaphragm did not seem to be acting at all. There was a frequent spasmodic attempt at cough. Loud whistling rhonchi were heard over the whole chest, but no moist sounds. There was no evidence of tracheal or laryngeal obstruction. Extensive subcutaneous emphysema existed; most marked on the left side, where it reached from the neck to Poupart's ligament and backwards to the spine; on the right side it was present chiefly about the neck and the supraclavicular fossa. The boy was placed in a steam tent and stimulants were applied, and in an hour he had much improved. The dyspnœa and cyanosis gradually disappeared, and the patient slept comfortably during the night. Next day he seemed very well, except that a spasmodic cough came on when he sat up in bed; respiration was now chiefly thoracic; inspiration was loud and clear, but expiration could scarcely be heard, and loud whistling rhonchi were still audible over both lungs. There was very slight relative deficiency in movement, resonance, and breath sound over the whole of the left side; this persisted, and was probably due to thickening of the pleura as a result of the attack of pleurisy before mentioned. The patient continued to improve rapidly; on the following day the lungs were clear, and on the sixth the subcutaneous emphysema had entirely disappeared, and the boy went out apparently quite well. The temperature throughout was normal.

The following I take to be the explanation of the course of this case.

Rupture of some portion of lung tissue led to escape of air into the interlobular and peribronchial tissue (interlobular emphysema); the air thus effused found its way extensively through the areolar planes of the affected lung, and on arriving at the root of that organ passed down the root of the other lung in its connective tissue. The result was great obstruction to the normal entry and exit of air, inasmuch as a considerable portion of that contained in the lungs was outside the air passages, and therefore fixed; hence the intense dyspnœa and cyanosis, the fixation of the chest walls, and the presence of rhonchi due to the external pressure of the escaped air upon the bronchial tubes. From the root of the lung the air passed through the mediastinum to the base of the neck, and thence over the surface of the trunk. Air is, as a rule, readily absorbed from any tissue into which it may have found its way, and in this case the patient fortunately held out long enough for its removal to be accomplished.

Interlobular emphysema is rarely met with, but is more common in children than in later life. It is, indeed, stated that in young children, as in some of the lower animals, the pulmonary lobules are separated from one another by distinct intervals occupied by connective tissue which are not met with in adults—an anatomical peculiarity favouring the escape of air into the interalveolar tissue. The commonest cause of interlobular emphysema is forcible retention of a large quantity of air in the lung by closure of the glottis during exertion. It has been produced by the efforts of parturition and of defæcation, by the lifting of heavy weights, during coitus, by paroxysms of rage, excessive laughter, and hysterical convulsions; but it is most commonly occasioned by the severe fits of coughing which occur in croup, whooping-cough, and bronchitis; and hence its greater frequency in children. It may be due to forced inspiration and expiration in conditions of intense dyspnœa and impending asphyxia, to extensive collapse of lung, and to ulceration of the trachea. Pepper mentions a case where it occurred during the course of acute tuberculosis in a child four months old, and another in a child of thirteen months, where it was due to destruction of lung tissue by abscesses resulting from pneumonia; and Walsh gives an instance in phthisis in which it was apparently caused by the breaking down of the lung by hemorrhage.

Usually it does not give rise to any definite phenomena. Wilson Fox says: "The symptoms of this condition are few and doubtful until subcutaneous emphysema is produced. Sudden and rapid increase of dyspnœa, with augmented clearness of the percussion note, have been observed in some cases; but the auscultatory signs are not significant." Walsh quotes a case of phthisis in which, after profuse hemorrhage, a percussion resonance like that of pneumothorax occurred at both sides of the back of the chest, the cause of which was made clear in a few hours by the appearance of subcutaneous emphysema.

The occurrence of pneumothorax from rupture of the pleura in interlobular emphysema (as in Case 1) is said by Hertz to be more common than the forcing of the air through the root of the lung and the mediastinum into the subcutaneous connective tissue. The production of subcutaneous emphysema is an accident almost limited to early childhood. Of twenty-five cases collected by Roger, twenty occurred in children; and of these instances of "general emphysema in children," as Roger calls them, six occurred under the age of two years, ten between three and four, and only four between ten and fifteen. My own patient was eleven years old.

It is not easy to account for the interlobular emphysema in the second case which I have described. The causes of this condition may be grouped under two heads:

1. Violent strain upon healthy lungs, as in the case of croup.

2. Normal or abnormal strain upon diseased lung tissue, as in the instances of abscess, acute tuberculosis, and pulmonary hemorrhage, before mentioned.

In this boy there was no evidence of the existence of lung disease. It is true that he had had pleurisy two years before, but this had apparently left behind nothing but a thickened pleura (which, by the way, possibly prevented the occurrence of pneumothorax). The boy is said to have cried with headache; this is the only history of any unusual strain. If the crying had been that of passion it might be accepted as a sufficient explanation; but headache tends to inhibit all unnecessary exertion, and it is difficult to believe that a boy with a headache would cry with energy enough to bring any undue pressure to bear upon his lungs. The rupture of pulmonary tissue was therefore due, presumably, to the presence of some weak point—not actually diseased—in its structure, which gave way under no unusual pressure.

The case illustrates an important fact with regard to interlobular emphysema which is perhaps not always sufficiently recognised—that it may exceptionally produce the gravest symptoms. The patient was almost suddenly seized with dyspnœa, which rapidly became so intense as to lead a medical man to conclude that there was an obstruction in the windpipe necessitating immediate tracheotomy; and on admission to the hospital an hour or two after the onset of the symptoms the boy appeared moribund from asphyxia. In its extreme form interlobular emphysema has caused sudden death. Ollivier records the case of a man who fell down dead in a quarrel from the asphyxia entailed by extensive interlobular emphysema. Leroy d'Etiolles demonstrated on animals that forcible lung inflation might, by the production of interlobular emphysema, cause death as suddenly as the division of the medulla oblongata; and Martini enumerates it amongst the modes of perpetrating infanticide.

It is obvious that no direct treatment can be adopted in interlobular emphysema; all that can be done is to relieve symptoms, and in grave cases to endeavour to prolong life until the effused air is absorbed. Where the secondary subcutaneous emphysema is extensive, some authorities recommend puncture of the skin.—*British Medical Journal*, May 14, 1892, p. 1010.

23.—ON EMPYEMA, BASAL LUNG DISEASE, AND BRONCHIECTATIC CAVITIES.

By Alex. James, M.D., Assistant Physician, Royal Infirmary, Edinburgh.

That bronchiectatic cavities are frequently the result of too long existent pleuritic effusions everyone will admit. The lung being bound down by a layer of fibrinous membrane, and the fluid being gradually absorbed, the diaphragm will be drawn up, the heart and opposite lung drawn over, and the chest wall drawn in. This drawing up, in, and over will not, however, in bad cases be sufficient to fill up the space which the absorbing fluid tends to leave, nor will in addition be the emphysematous distension of the affected lung at parts still pervious to air. Hence the bronchial tubes, the most yielding parts, will have their walls drawn out, and bronchiectasis will be produced. But what I wish to contend for in this paper is that a purulent pleuritic exudation—that is to say, an empyema—is, by its being able much more readily than a sero-fibrinous effusion to burrow through the lung tissue and open into a bronchial tube, a quite as frequent cause of basal lung disease and bronchiectatic cavities.

Suppose we have a bronchietatic basal cavity, the forces which tend to keep this cavity enlarging are—(1) acts of coughing; (2) pressure of secretion; (3) traction, as the result of cell infiltration, fibrosis, and contraction in the lung tissue around. As regards 1 and 2 nothing more need be said; it is evident that both must always act in distending the cavity. As regards 3, the traction, we have to notice that it will act partly in distending and partly in contracting the cavity. Thus, as the newly formed fibrous tissue contracts in every direction, it will, by drawing the cavity wall to the parietes, have an enlarging effect. On the other hand, by its contracting in the opposite direction, it will at the same time act in contracting the cavity. Which of these effects of this fibrotic contraction will be the more marked? With a very large cavity—that is to say, a cavity nearly as large as the pleural cavity itself—the enlarging effect would certainly be the greater; but with most smaller cavities, having in consequence of their smaller size a considerable amount of lung tissue around which can yield to some extent, the contracting effect will be the greater. In ordinary large cavities, however, there will be very little difference in favour of the latter; so that, as against the distending effects of the coughing and of the accumulating secretion, any such contraction of the cavity will have little chance of occurring.

It is quite otherwise, however, when the cavity is opened and drained through the chest wall. Here the secretion cannot accumulate, and so can have no distending effect, whilst the cough, owing to the drainage opening through the chest wall, may as a distending force practically be neglected. The contracting effects of the fibrosis will now have a chance of manifesting themselves, the walls of the opening through the lung tissue and the adhesions between the pleura and ribs will both be drawn upon, so that with the diminution in the size of the pulmonary cavity more and more space will be yielded by the pleural cavity. This was precisely what happened in the case of a man who had the symptoms and physical signs of a very large cavity in the lower part of his right lung, and on the night of his admission brought up about a pint of very fœtid muco-purulent fluid.

Three days after the cavity was opened and drained. The patient was immensely benefited by the operation, but the discharge never entirely ceased, and he died in April, 1888. On post-mortem examination the following were the appearances met with:—

"Right lung was adherent a little way from its anterior border to the chest wall by a ridge of dense, hard, thick adhesions, which cut almost like cartilage. On cutting through this ridge, and thus separating the lung from the thoracic wall, a large cavity was opened into which was evidently the pleural cavity. The lung itself was collapsed toward the spine, and was covered by a dense, tough membrane, the thickened visceral pleura. The lung retained its connection with the parietes across the cavity by means of two thick pillar-like structures about the thickness of a florin; these were evidently limited areas of pleural adhesions which had been formed before the lung collapsed as a whole. The central part of their pillar-like structures contained pigmented pulmonary tissue, in which the alveoli were clearly visible to the naked eye. These two structures were situated on the upper part of the collapsed lung.

"On the surface of the lung, on its posterior aspect and near its inferior border, there were two openings the size of a large goose-quill; these were at the bottom of funnel-shaped depressions, and were quite evidently of long standing. One of these opened into a small cavity the size of a hazel nut, which had fibrous walls. This cavity was in connection with a somewhat dilated bronchus. The second one was in connection with an

anfractuous cavity, which ran for about three inches upwards in the substance of the lung. This cavity had its walls formed of pigmented alveolar tissue, and presented no fibroid thickening, as old cavities do: the largest part of this cavity would hardly hold a pigeon's egg—the greatest part of it was not one-third of that size. In the apex the tissue of the lung was tunnelled with cavities which communicated with one another, and presented the further interesting fact that they were in connection, by long passages, with the pulmonary tissue in the pillar-like structures already referred to. Sections of this lung presented many different stages of destructive action. The more unaffected portions were deeply pigmented and leathery. The pleura was very much thickened, the bronchi were of deep purple colour, and tubercles were visible in their mucous surfaces."

In this case the pulmonary cavity was evidently so large that complete cicatrisation could not possibly occur; but the point which I want to emphasise is that, as stated above, the diminution in size of the pulmonary cavity meant the formation of a pleural one. Now, my contention is that similarly a collection of pus in the pleural cavity will, if allowed to drain through the lung, readily produce a pulmonary or bronchiectatic cavity.

In the case of an ordinary circumscribed empyema the lung tissue around is fibrosed from compression and irritative inflammation, and the acts of inspiration, expiration, and coughing have little effect on the pus.

But suppose this pus ulcerates its way through the lung tissue into a bronchial tube? Its escape by the tube is not usually followed by entrance of air into the empyema cavity, and so there occurs an approximation of the pulmonary to the costal pleura, and consequent tendency to obliteration of the empyema cavity. The escape of pus will also, it is to be noted, be favoured by every inspiration, and the approximation of the pulmonary to the costal pleura by expiration and coughing.

In time, by this suction and force-pump-like action of inspiration, expiration, and coughing, the pus will be got rid of, the pleural membranes become again adherent, and in favourable cases this will mean the recovery of the patient. But the course is not always so favourable. The suppurative inflammation at the base of the lung caused by the burrowing of the pus is very likely to induce irritative inflammation and loss of tissue. This loss of tissue has to be made up for by fibrosis and contraction, which, we have already seen, must act by drawing bronchial walls to pleura, and so tending either to separate again the pleural membranes or to dilate the bronchial tubes.

When we reflect that the act of coughing is all in favor of the dilating process, and that the irritation of the bronchial mucous membrane by the pus will cause increased secretion, and in time a similar distending tendency, we can, I think, understand how in this way, with obliteration of the pleural cavity, bronchiectatic or basal lung cavities are sooner or later likely to be produced.

Since ordinarily we do not see instances of basal cavities which we believe to have been produced by empyemas bursting through the lung until long after all traces of the empyema have disappeared, it is difficult in any given case to be sure that empyema has been the cause.

What I desire to draw attention to is that an empyema may be a cause of basal lung mischief, which is very likely to be fatal within a few months or years. I wish also to point out that such empyemas, often small and localised, are not at all uncommon, and often very difficult to diagnose,

repeated exploratory punctures frequently failing, time after time, to reveal the purulent collection.—*Edinburgh Medical Journal, May*, 1992, *p.* 993.

24.—ON ASPIRATION IN PNEUMOTHORAX.

By G. A. SUTHERLAND, M.B., M.R.C.P., Physician to the North London Consumption Hospital.

Amongst the many complications of phthisis none causes greater anxiety than pneumothorax, the mortality of which, according to Dr. Samuel West's statistics, is 66 per cent. The line of treatment usually adopted is expectant, but that some more active interference may be carried out with advantage is illustrated in the following case.

H. V., aged thirty-two years, was seen for the first time on December 15th, 1890. He had been in India for several years, and had suffered from ague and dysentery. He had had rheumatism occasionally, and when a boy had brought on a "strain of the heart" by running races. There was a family history of phthisis. He stated that he had had sickness and vomiting after dinner for a few days, accompanied by the old malarial symptoms. On the previous night he had coughed up blood seven or eight times. There had been no sweating or loss of flesh. He was poorly nourished, and looked very much pulled down. The chest was well formed, and no evidence of disease of the lungs was detected on physical examination. As regards the other organs, the only point noted was a reduplicated second sound at the base of the heart. There was a slight attack of hæmoptysis next day, and the temperature in the evening was about 101° for a week, after which all symptoms disappeared, and he resumed his work in the following month. Two months later there was a recurrence of the hæmoptysis, with cough and profuse mucoid expectoration, which was found to contain tubercle bacilli. The only sign of pulmonary disease detected was slight crepitation near the root of the left lung posteriorly. He was sent to Ventnor in March, preparatory to leaving England for the Cape at the end of the summer. In May, 1891, he returned to town very much worse. He had lost flesh and was troubled with violent cough, followed by sickness and great depression. There was slight pyrexia in the afternoon and sweating at night. The left lung showed dulness at the apex anteriorly, and over the upper third posteriorly, with blowing breathing and crepitation, and friction sounds were heard over the left scapula. No evidence of disease was detected in the right lung. On June 22d, after severe and prolonged coughing, he was seized with acute pain in the lower part of the left chest, passing from the front to the back, and accompanied by headache, sickness, sweating, and great prostration. The temperature was 104°, pulse 120, and respiration 32. The decubitus was right-sided. The cardiac sounds were inaudible to the left of the sternum, but louder than normal to the right of it. Expansion was very slight on the left side of the chest, and vocal fremitus was entirely absent. The percussion note over the front of the left lung, from the clavicle downwards, and including the cardiac area, was hyper-resonant, and this condition existed also in the axilla, and posteriorly from the middle of the scapula to the base. Over this area the breath sounds were almost inaudible, and the vocal resonance was very much diminished. The breath sounds were more audible along the left side of the spine. The expectoration was muco-purulent, blood-stained, and contained many tubercle bacilli. The treatment adopted was nourishing fluid diet, alcohol and morphia in full doses, both hypodermically and by the mouth, which soon checked the troublesome cough and retching, and the severe chest pain which these caused. He had occasional attacks

of dyspnœa with cyanosis. The decubitus became left-sided, any other position causing him acute pain. The strength was well maintained until the third day, when the temperature again rose to 104°, and there seemed to be an increase of pressure in the chest, followed by progressive weakness. On the eighth day of the attack he became much weaker, and at midnight his condition was critical. There was muttering delirium, the respiration was 36 per minute and very laboured, and the pulse was so weak and irregular that it could not be counted. There was a uniform distension of the left side of the chest, with complete absence of expansion, and vocal fremitus. The area of hyper-resonance extended one inch and a half to the right of the sternum, and the cardiac apex was felt one inch internal to the right nipple. The breathing over the hyper-resonant area was distant amphoric, with occasional tinkling *râles*, and the "coin sound" was well marked. The heart sounds were faintly audible to the left of the sternum. It was resolved to puncture the chest for relief of pressure. The needle of an aspirator was inserted into the left pleura in the axillary region, but no air passed out. The aspirator was then attached, and the air in the receiving bottle was partially exhausted. On opening the connection, air was at once heard to pass into the bottle, and by means of slow and interrupted aspiration a considerable quantity of air was removed from the pleural cavity. The process occupied about an hour, and the patient's condition was manifestly improved. The respiration fell to 24, and the pulse to 108, becoming at the same time fuller and stronger, while the heart sounds could be heard much more distinctly to the left of the sternum. On the following evening there was a recurrence of the cardiac weakness, and an area of dulness at the base of the left lung posteriorly was noted. Aspiration was again performed. At first air only was withdrawn, then air mixed with fluid, and finally nine ounces of clear fluid were evacuated. A friend who was present noted the change in the position of the cardiac apex during the process, and found that it moved three quarters of an inch to the left, while the pulse again showed marked improvement. There was no cough on either occasion. A few days later expansion became evident on the left side, with sinking in of the intercostal spaces during inspiration, and the breath sounds became louder, blowing in character, and in parts amphoric, with tinkling accompaniments. At the end of a month, progress being delayed by a slow formation of fluid in the left pleura, with displacement of the heart to the right, the chest was again aspirated and thirty-four ounces of clear fluid were withdrawn. He then improved rapidly, and in September he was found to have gained eleven pounds and a half in weight, and could walk four miles without fatigue. There remained impaired resonance over the left side of the chest, but the expansion was fairly good, and the breath sounds, although weak, were audible all over. He sailed for the Cape on October 8th, 1891, and has continued in good health.

Treatment by aspiration is not advised by the leading authorities in cases of pheumothorax. Dr. Douglas Powell speaks of the timely introduction of a fine trocar, when there are signs of increasing pressure within the chest, but says nothing about aspirating the pleura for air. Dr. Wilson Fox refers to the treatment by a simple trocar, but says that "aspiration is best avoided ; it brings with it the danger of renewing the fistulous opening, and this effect has actually been observed in a secondary effusion following pneumothorax." Dr. Hilton Fagge says an aspirator should never be used, on account of the danger of reopening the original aperture. It is evident that the use of a trocar will only be of service when the pressure of air in the pleura is greater than that of the atmosphere, which, according to Dr. Hilton Fagge, is by no means generally the case.

On the other hand, Dr. Douglas Powell has shown that lateral displacement of the heart occurs in pneumothorax, owing to the normal elastic retraction of the sound lung, which drags over the mediastinum, even when the pressure of air is not greater than that of the atmosphere. If, then, the use of a simple trocar be accepted as the final treatment in the cardiac asthenia of pneumothorax, we cannot expect very great relief in cases in which the intra-thoracic pressure is not greater than that of the atmosphere. The dangers of slow aspiration in suitable cases have, perhaps, been exaggerated, and the above case shows that the benefit may be very marked. In considering the question of aspiration one point must not be lost sight of—namely, that an attack of pneumothorax, by giving rest to the affected lung, may be a most effective therapeutic agent in phthisis, This patient's phthisical condition at the onset of pneumothorax was very serious, and was rapidly getting worse, while two months later no evidence of active phthisical mischief could be detected, nor has any since appeared. It is probable that the compression of the lung, at first by air and later by fluid, had brought this about, and that a repetition of the aspiration, except when urgently called for, might have prevented this good result.—*The Lancet*, June 25, 1892, p. 1419.

DISEASES OF THE ORGANS OF DIGESTION.

25.—ON CATARRHAL GASTRITIS.

By Harold N. Moyer, M.D., Adjunct Professor of Medicine in Rush College, Chicago.

Catarrhal gastritis is an affection frequently found associated with or complicating other disorders, both acute and chronic. On looking over my case-books for some years, I find that a diagnosis of chronic catarrhal gastritis has been made 118 times. Carefully examining these records, I find that there are only seventeen cases in which the disease can be considered primary ; that is to say, excluding all cases in which the disease was associated with heart and lung diseases, liver and renal disorders, rheumatism, anæmia, and neurasthenia.

Of the seventeen cases in which we could exclude all complicating disorders and the grosser structural alterations, such as ulcer, tumours, and dilatation, the symptomatology was briefly as follows :—In twelve cases, the tongue was heavily coated ; in three, slightly coated ; and in two it was clean. Constipation was present in eleven cases. Pain in the epigastrium, both on pressure and after eating, was present in all cases. In eight there was a sense of swelling or fulness in the epigastrium. Seven cases complained of nausea alone ; this was usually worse after meals ; the remainder had vomiting. Nine had eructations of gas. The appetite was fair in six cases, in five it was good, and in six it was poor.

The foregoing constitutes the clinical picture of chronic catarrhal gastritis, one of the most frequent disorders that the physician is called upon to treat. The most constant signs are the pain in the epigastrium and the nausea and vomiting, the coated tongue, constipation, and loss of appetite being by no means so regularly present.

The etiology of these cases was not so readily ascertained. The preponderance of the male sex was shown in that thirteen of the seventeen cases were men. The chief cause was the abuse of acoholics, both in fermented and distilled liquors. The practice of dram-taking just before meals seemed to exercise an especiaily deleterious influence. There was a history of excessive use of tobacco in several instances, but no case was

uncomplicated by the liquor habit. The ingestion of iced liquids, either before or with meals, seemed to be an exciting cause in four cases. Two of these patients used large quantities of tea. In more than half of the cases the etiology was mixed, and in many no definite cause could be ascertained. These latter, however, all belonged to the dispensary patients, and it is probable that poor and improperly prepared food had much to do with the condition. In no single instance could the disease be traced to pre-existing acute or subacute gastritis. The disorder invariably came on gradually, with periods of amelioration, to be followed by relapses, the symptoms gradually becoming worse until the patients consulted a physician. The duration of the disease varied from several months to many years.

The necessity for washing out the stomach in these catarrhal inflammations has been dinned into our ears for some years. Scarcely a recent text-book can be consulted that does not recommend lavage of the stomach as the remedy *par excellence* in catarrhal gastritis. I have no issue to take with this statement; lavage is one of the best means at our command; but, notwithstanding continued reiteration, the method does not seem to have become at all popular or to have met with extended application. The reason is not far to seek. The procedure requires a somewhat cumbersome apparatus and the necessity of teaching the patient how to use it. I do not know what the experience of others has been, but my own successes in this direction have not been brilliant. Occasionally a patient can be taught to use the tube, and if he will persist he soon comes to like the treatment. As a rule, patients object when the subject is first mentioned, and, if they try the method, the generally unpleasant effects of the first one or two introductions is sufficient to send them in search of a physician who employs a less disagreeable treatment. The result has been that the profession has generally adhered to the old-time prescription of bismuth with pepsin, and sometimes a bitter tonic. If any directions are given regarding diet, it is generally no more specific than that he is "to be careful with his diet," or "to eat light food." It is needless to say that these methods are as unphysiologic and unscientific as they are unsuccessful.

In catarrhal gastritis the stomach secretes an excessive quantity of mucus. As soon as the food is ingested it is at once coated and prevented from coming in contact with the stomach-wall. The result is that the stomach is not supplied with its normal stimulus, and both the secretion and movement of the organ are lessened. What secretion there is cannot readily reach the food; in consequence, in the absence of the antiseptic power of the gastric juice, the food ferments, gases are formed, and vomiting takes place. The prolonged retention of food and the irritation react to increase the inflammation and congestion of the organ. This morbid cycle, once set up, perpetuates itself with ever-increasing intensity.

The plan employed in treating the seventeen cases that form the basis of this paper consisted in the administration of hot alkaline water before each meal. Sodium bicarbonate is added to the water in the proportion of ten grains to the pint. Of this solution eight, twelve, or even sixteen ounces, according to the severity of the case, are administered at least twenty minutes before each meal. The water should be as hot as can comfortably be borne, and should be taken slowly. By this means the stomach is effectually cleared of its contained mucus, and is prepared for the reception of food. This should consist of a test-meal of from four to six ounces of steak, preferably broiled, with from two to four ounces of bread, thinly buttered. From this starting-point the diet should be

increased or decreased as the patient does or does not suffer from nausea or vomiting. The central idea of the diet in these cases is to restrict it largely to proteids, such as lean meats, oysters, and eggs, together with a small quantity of bread. All starches and fats should be excluded, excepting the small quantity contained in the thinly buttered bread. This is a matter of importance because of the readiness with which starches and fats undergo decomposition when gastric digestion is delayed. When the quantity of food that the incompetent organ will digest without leaving a residuum for fermentation has been ascertained, it should be held for a few days at that point, and then gradually increased. As the inflammatory condition subsides the organ gains strength, and the diet may be increased and made to include a great variety of food. Bismuth, cerium oxalate, nux vomica, and the bitter tonics are useful adjuvants in treatment.

I do not think that pepsin is of any value in the treatment of chronic catarrhal gastritis. I do not wish to be understood as decrying the value of pepsin in certain stomach disorders, notably those attended by atrophy of the gastric tubules, or other structural alterations. Pepsin is also useful in the cases of catarrhal gastritis dependent upon anæmia, nephritis, and other disorders in which the primary trouble is due to failure of gastric secretion from a deficient or poor blood-supply. In these cases the agent may prove invaluable, but, in my judgment, the dose usually employed is much too small. It is in the uncomplicated inflammation that I regard pepsin as valueless; the indigestion is dependent on an entirely different set of conditions.

Relapses are exceedingly common; in fact, they occurred in every one of my cases. They are to be met by a return to the treatment, if it has been suspended, or to a stricter and lessened quantity of food. In the course of the treatment the relapses will occur less frequently; they will be less severe, and will yield more readily to the remedies employed.

The results in the seventeen cases were excellent; eight of them recovered, remaining well at least six months after suspending treatment. Of the remaining nine cases, all were improved, and some of them could be considered recovered, as they passed from under observation completely relieved, but I had no opportunity of learning their condition some months after suspending treatment. In no case was the treatment persisted in for some weeks without marked improvement being noted.—*Medical News*, June 11, 1892, p. 649.

26.—ON SUPPURATIVE PYLE-PHLEBITIS.

By J. S. Bristowe, M.D., F.R.S., Consulting Physician to St. Thomas's Hospital.

[Dr. Bristowe narrates four examples of this disease under the following headings:—*Case* 1.—Suppuration of the portal vein; ague-like paroxysms; purpura; death due immediately to hemorrhage from the liver caused by puncturing with a trocar and cannula. *Case* 2.—Suppurative pyle-phlebitis; ascites; peritonitis; death. *Case* 3.—Suppurative pyle-phlebitis; peritonitis from the bursting of a hepatic abscess into the peritoneal cavity; death. *Case* 4.—Imperfect. No autopsy. Dr. Bristowe saw it only once, but had no doubt as to its nature. The paper concludes as follows:]

I propose to make a few remarks on the foregoing cases under the heads of symptomatology and diagnosis, ætiology, and treatment, and upon one or two incidental lessons which they seem to teach. In discussing them, however, I shall omit the last case; inasmuch as, although I myself regard it as one of the group, there is room for doubting the correctness of this view.

It will be admitted, I think, that my cases showed a remarkable likeness among themselves in their symptoms and progress. The general symptoms in all three were the characteristic symptoms of pyæmia or septicæmia, and, apart from specific local conditions, might have been the symptoms of pyæmia associated with unhealthy wounds, puerperal fever, acute necrosis of bones, suppuration of the lateral sinus in connection with ear-disease, or ulcerative endocarditis. In none of the cases, however, was any one of these associations present. On the other hand, in every one of them there were symptoms pointing to some intra-abdominal complication. In all of them, sooner or later in their progress, there arose some enlargement and tenderness of the liver and some enlargement of the spleen; and the evidence of affection of the liver was in every case sufficient to lead to the belief that suppuration was going on in that organ, and to render the performance of paracentesis expedient. There was also in each case a well-marked tinge of jaundice; but this was unattended with impediment to the passage of bile into the bowels, or (excepting on rare occasions, and then only in minute proportion) with the presence of bile-pigment in the urine. The jaundice in fact was probably not the jaundice of actual hepatic disease, but rather of the nature of that not unfrequently met with in cases of pyæmia where the liver is not affected, and in pernicious anæmia. The condition of the liver, although essentially the same in all the cases, presented a good deal of variety, in dependence probably upon the amount of pus accumulated in it. Thus, in my first case the liver was never very large or tender, and might easily have been overlooked as contributory to the patient's illness, had it not, owing to the obscurity of the case, been carefully examined from day to day; in the third case, also, at first there was no evidence that the liver was affected, although such evidence very soon accrued; in the second case there was no doubt even from the beginning that the liver was involved.

With obstruction in the course of the portal vessels ramifying through the liver, it is natural to assume that sooner or later some of the ordinary consequences of such obstruction should arise. It is interesting, therefore, to observe that in each of my cases the spleen became enlarged while the patient was under observation; and that in one of them ascites came on together with enlargement of the veins in the abdominal walls. It seems possible that the bloody mucus found in the cæcum in my first case had some relation to the intestinal hemorrhage which occurs in connection with portal obstruction. It is interesting also to observe that the suppurative inflammation in the liver may induce peritonitis. In my second case this followed on paracentesis abdominis, but seems to have been caused by direct extension from the inflamed liver; in my third case it was due to the rupture of an hepatic abscess into the cavity.

As to ætiology I have little definite to say, owing mainly to the fact that in every case the intestines were removed from the body before any thought of examining the mesenteric veins had arisen, and hence the opportunity for careful investigation of these vessels was lost. Old mischief, however, was discovered about the vermiform appendix in my first case, and some of the mesenteric veins in connection with this part were found to contain pus; and in my second case marked congestion was observed about the ileo-cæcal valve. In the third case no record seems to have been kept of the state of the bowels. The post-mortem facts just quoted in regard to my first two cases are suggestive of the origin of the portal suppuration in some inflammatory or ulcerative condition of the bowel. But the probability that pyle-phlebitis is determined by some such cause is strongly supported by the case quoted from the *Pathological Transac-*

tions in the early part of this paper, which showed the presence of suppurating clots in the portal vessels secondary to acute suppurative inflammation of the stomach and jejunum. It may be asked in this connection how it is that, if I trace pyle-phlebitis to intestinal ulceration, I do not at once admit the similar connection between tropical abscess of the liver and dysentery? The difficulty I feel in regard to this question depends on the fact that such abscesses are usually solitary, and do not follow the ramifications of the portal vessels, and that their development and continuance are not as a rule (so far as my experience goes) attended with pyæmic symptoms.

In respect of treatment, again I have little to say. The treatment employed was largely the exhibition of quinine or cinchona with nitro-muriatic acid, and of as much nutritious food as the patient could be made to take. And against the febrile paroxysms large doses of quinine, antifebrin, and other febrifuge medicines were employed; but all without any marked benefit. It is unfortunate that in no case did the aspirator succeed in reaching, or at any rate removing, pus. I am bound to confess, however, that, having regard to the ramifying character of the suppuration, I do not believe that even a successful puncture would have given any real relief, or have delayed the patient's death. Nevertheless, in all like cases I should counsel, and myself adopt, such operative procedure.

Two incidental matters of interest are illustrated by the foregoing cases. One of them is that the effusion of inflammatory lymph into the peritoneum in the last two cases caused well-marked friction, which could be heard by means of the stethoscope, and felt. This was best recognized just below the ensiform cartilage, where, by pressing the finger directly inwards, it could be felt; by combined auscultation and pressure it could be heard, as a kind of course crepitation having much resemblance to that caused by the similar treatment of subcutaneous emphysema. This phenomenon is by no means uncommon, though I think often overlooked, in cases of peritonitis. Although I have spoken of it above as friction, it is not improbably largely due to the displacement of fluid from between multilocular adhesions, just as in emphysema the very similar phenomenon is caused by the displacement of air in the multilocular connective tissue.

The other point of interest is furnished by my first case, and has relation to the cause of the patient's death by hemorrhage. It is generally considered, and I think, rightly, that simple puncture of the liver is attended with little risk of serious hemorrhage into the peritoneal cavity; and, undoubtedly, fatal hemorrhage from such a cause is rare. Still, my case shows that such an event is possible. Why did it occur? I confess I cannot answer the question definitely. It probably depended on one of two conditions, either of which might explain such an occurrence. The first is that the patient had for a few days been suffering from symptoms of purpura, such as are apt to arise in the course of hepatic disease, or (I may add) of pyæmia, or of profound anæmia. The second is that the puncture which led to the hemorrhage was made from the back of the liver and near the mesial line, and, therefore, in a course along which there was special risk of wounding one of the larger branches of the hepatic vein. A careful examination was made in order to ascertain whether or not this accident had occurred; but no wounded vessel was discovered. On the whole, therefore, I incline to the view that the cause of the local bleeding was connected with the general hemorrhagic tendency which had latterly supervened.—*The Practitioner*, October 1892, p. 267.

27.—ON THE TREATMENT OF GASTRIC ULCER.

By JULIUS DRESCHFELD, M. D., F. R. C. P., Physician to the Manchester Infirmary.

In the following remarks on gastric ulcer I shall confine myself few points only, as the rules for treatment of the various symptoms sufficiently well known and generally adopted. In those cases in w the most prominent symptoms are localized epigastric pain, vomiting, of appetite, and anæmia, and which principally occur amongst young chlorotic females, rest, strict diet, and the administration of alkalies bismuth has been the stereotyped treatment. It is essential that eac these measures should be, wherever it is possible, strictly enforced. C plete rest in bed for some weeks, recommended at first by English pl cians, and more recently insisted upon by Leube, Ziemmsen, Ewald, Rosenheim, is an essential point in the treatment, and must be insi upon even if there is no hæmatemesis or vomiting of food. After a weeks the patient may be allowed to sit up a few hours and move a slowly, or take drives when the weather permits it.

As regards diet, it is necessary when the irritability of the stoma very great, and where the pain and vomiting occur frequently, to with for a few days (3 to 8 days) all food by the mouth and feed the pa entirely by nutritive enemata. And here I have found that a mixtu two raw eggs with 2 oz. of beef tea, to which, in some cases, a s quantity of brandy (1 oz.) may be added, often acts better than pepto suppositories, some of which are often passed out quite unaltered; it been shown by Ewald that the nutritive value of raw eggs in the for an enema, without the addition of a peptonising ferment, is very consi able. As the patient often complains of great thirst, small quantitie warm water, or of barley water, or small pieces of ice, may be give the mouth. After a few days one may commence cautiously with s quantities of food, such as warm milk, to which lime water is adde peptonised milk, peptonised foods, arrow-root or gruel. The food sh be given every two hours, and in small quantities (3 to 4 oz.) at a t This treatment should be continued for at least 3 to 6 weeks, the qua of food being gradually increased, and the dietary during the last weeks may be a little varied. Brand's essence, or other similar prep tion, may be given with advantage, rice-milk, and (where they are borne) soft boiled or raw eggs, or eggs beaten up with milk. Soups o kinds and beef tea I have not found useful during the first few week the treatment. In some cases it is necessary that this diet should be tinued for months, often a slight deviation from it gives rise to pain most cases, however, the pain and vomiting have completely subs after 4 to 6 weeks, and then I found that a diet slightly modified that proposed by Leube most useful; comprising milk, with stale br water biscuits, peptonised food, mutton or lamb finely minced, but v out any spices, boiled chicken, soft boiled eggs, cocoa, rice, stewed sweetbread, oysters. After some months, the patient may take roasted fowl, pigeon, rabbit, game, underdone meat, and of vegeta small quantities of potatoes and asparagus; of fats, butter and crean best borne. The foods especially to be avoided are fresh bread, st tea and coffee, cabbage and other green vegetables, beans, peas, and heavier kinds of meat; all curries, preserves, cheese, sweets, and cake

Alcoholic stimulants are best avoided, and only when all pain an dyspeptic troubles have subsided, and if the patient is very anæmic, the light wines or light, home-brewed ale, or Lager beer, be permitte small quantities. As drink with the meals, warm water, or milk

water, or some of the aërated waters, may be recommended. The dietetic treatment, though the most important factor in the therapeutics of gastric ulcer, has to be supplemented by other measures. For the first few weeks, the constant application of hot poultices to the epigastrium will do much to relieve pain. Instead of the poultice, the stomach capsule, first introduced by Leube, may be used. It consists of a concave tin capsule, so shaped as to fit closely to the epigastric region, which can be filled with hot water, and which has a ring on each side, so that it can be easily fastened, and can be worn while the patient moves about. Some recommend Carlsbad salts dissolved in hot water, given the first thing in the morning, as an essential part of the treatment; it is said to act beneficially by neutralising the acidity of the gastric juice, by stimulating the secretion, by increasing the peristalsis, and by acting as an aperient. As the salt is given when the stomach is empty, the neutralising effect, as has been pointed out by Ewald, Rosenheim, and others, can only be of use if there is hypersecretion as well as hyperacidity of the gastric juice, and it is doubtful how far an increase of the secretion and an increased peristalis is useful in these cases at the beginning of the treatment. Acting on the recommendation of some observers, I have used Carlsbad salts early on in the treatment of gastric ulcer, but I have so often found patients complaining of pain and discomfort after its administration, that I have for the last few years reserved its use for those cases where there is marked gastric catarrh besides the ulcer, and for chronic cases of ulcer when the acute symptoms have subsided, instead of Carlsbad salts, I have latterly been in the habit of giving an infusion of senna pods (8 to 10 senna pods added to about 10 oz. of boiling water; the water is allowed to cool, and the pods are removed). Usually 6 to 8 hours after this infusion has been taken, a satisfactory action of the bowels follows. Where the pods give rise to griping, or cause an increase of the gastric pain, I give as an aperient simple or glycerine enemata. Of drugs, bismuth and carbonate of soda are the most useful, and ought to be given in larger doses than are prescribed in the text-books. Where the epigastric pain is very great, I have often found powders consisting of fifteen grains of bicarbonate of soda, fifteen grains of subnitrate of bismuth, and one-twelfth grain of hydrochlorate of morphia, given two or three times daily, very useful. Instead of morphia, the administration of codeia, in the form of pills, is often to be recommended. Nitrate of silver has, especially on the Continent, enjoyed a great reputation in the treatment of gastric ulcer, and one certainly often sees the cessation of pain after its administration. I have often given it from the very beginning of the treatment, either in the form of pills (one-fourth grain), or in liquid form (one-sixth grain) per dose. It may be safely given for some weeks before any argyria is to be feared, and, as a rule, it acts speedily, but where it does not soon relieve the pain its administration should not be continued. With the treatment we may often combine massage of the limbs, especially in neurotic patients.

The treatment here sketched out often reduces the patient and renders him weak, and probably many object to it, and think it unnecessary, as equally good results have been obtained by less stringent measures as to diet and rest. It must, however, be observed that where the treatment has been rigidly carried out the ulcer has often completely healed, the symptoms all subsided and the patient been completely cured. Where, on the other hand, the treatment has been less rigid, we often notice a return of the symptoms and have to fear hæmatemesis or perforation. This rigid treatment is not only to be followed out in undoubted cases of gastric ulcer, but also in those where the diagnosis between gastric ulcer and

hysteria or neurasthenia is doubtful, for it will often benefit these cases of functional nervous disease ; and, on the other hand, it is chiefly in those cases of gastric ulcer where the symptoms are slight and undefined that fatal perforation most often occurs, as I pointed out before, and a careful and strict treatment in some of the cases given, might have prevented the fatal issue.

The after-treatment, when the troublesome symptoms have subsided, should be directed to improve the patient's strength, to regulate the digestive functions, to increase the appetite, and to prevent gastric catarrh and gastric irritation. The diet should be carefully regulated, and anything that gives pain or discomfort avoided ; nitrate of silver and bismuth may still be given for a short time, and then replaced by iron, arsenic, and, where it is well borne, quinine. Carlsbad salts, or phosphate or sulphate of soda are useful laxatives.

Change of air, especially to a bracing, invigorating climate, or four or six weeks spent at Carlsbad, or later on at some of the health resorts with chalybeate springs, are often beneficial, though I confess, except in very anæmic subjects, I have not found the chalybeate waters do much good.—*Medical Chronicle*, May, 1892, p. 105.

28.—ON THE LIMITS OF MEDICINE AND SURGERY IN APPENDICITIS.

By C. B. Ball, M.D., F.R.C.S.I., Surgeon to Sir Patrick Dun's Hospital.

The pathological processes which originate appendicitis are subject to some variety. In a large proportion of cases it will be found that there is present in the appendix a foreign body—this may be a fruit stone, grain of shot, or other similar substance which has escaped into the appendix from the cæcum, or an enterolith which has formed *in situ* by the concentric deposit of fæcal matter and mixed phosphates. In either case the pressure of the body may produce necrosis of the epithelial lining of the appendix, and thus allow the septic bacteria, which are so numerous in the fæces, to escape into the submucosa, and give rise to ulceration or gangrene of the appendix. There is great anatomical variability in the orifice leading from the cæcum into the appendix ; in some it is well protected by a valvular fold of mucous membrane, while in others it is patulous and the valve entirely wanting. Possibly this patulous state of the orifice, which is probably congenital, accounts in some degree for the fact that this disease is one occurring in early life in the vast majority of instances. In many cases, however, no foreign body or enterolith can be found, and the cause of the initial ulceration must remain doubtful. When an ulcer or gangrene of the appendix takes place, it may be followed by plastic inflammation of the surrounding peritoneum without causing suppuration. This is what takes place in the milder cases which resolve spontaneously. In a second class of cases localised suppuration takes place, and an abscess forms which may point in the lumbar region or iliac fossa, while occasionally an intra-abdominal abscess may form, sometimes of very considerable size. In these cases the size may increase very rapidly by the development of gas, although the quantity of pus is small. There has been much contention as to whether these abscesses are intra- or extra-peritoneal ; it will, however, be obvious that as the vermiform appendix is entirely surrounded with peritoneum, they must in the first instance be intra-peritoneal. But the distinction is not of great practical importance, because when adhesions have taken place between the cells of intestine in

the immediate vicinity and the parietal peritoneum, the case resembles one in which an abscess has arisen outside the serous sac, the great bulk of the cavity remaining uninvolved, but in all probability the danger of rupture into the general cavity of the peritoneum is greater where the wall of the abscess consists of adhesions only.

Where the floor of the ulcer suddenly gives way without the previous formation of limiting adhesions, extravasation of fæces will take place and septic peritonitis be the inevitable result, the acuteness of the peritonitis, however, being usually less than when the stomach or small intestines is perforated, death not usually resulting in the former until the fourth or fifth day. Mynter has suggested as a reason for this, that when the small intestine is perforated, the movement of the gut in peristalsis distributes the septic matter rapidly over a large surface of the peritoneum, while the more fixed position of the cæcum limits the peristaltic excursions of the vermiform appendix. A more probable explanation, however, is that the very small calibre of the appendix as compared with the other portions of the intestinal tract permits of only a much slower extravasation of fæces. Among the more distant results of ulceration of the appendix may be mentioned the cicatrical closure of the lumen and the dilatation of the distal portion into a retention cyst. In one of the cases recorded by McBurney such was found to be the case. A cyst so formed might, of course, at any time rupture into the peritoneum, but it is not probable that the results would be so disastrous as in primary perforation of the appendix, the fæces not being extravasated.

From the foregoing it is obvious that three clinical types of appendicitis may be recognised, and the classification of Professor With, Copenhagen, is a convenient one:—(1) Peritonitis appendicularis adhæsiva; (2) peritonitis appendicularis localis; (3) peritonitis appendicularis universalis.

The symptoms by which the first variety is ushered in are—Sudden severe abdominal pain, usually more marked on the right side, vomiting, and a considerable degree of fever. An examination of the abdomen shows that the muscles of the right side are more rigid than those of the left, and McBurney has pointed out the fact that although the entire abdomen may be painful and sensitive to the touch, one point of extreme tenderness can usually be made out if carefully examined for. For this purpose the tip of one finger only should be used, and the surface of the right side of the abdomen gently palpated. It will then usually be found that the focus of greatest sensitiveness is on a line joining the umbilicus with the anterior superior spine of the ilium, and in the adult about two inches from the latter point; this corresponds with the position of the base of the vermiform appendix. In two cases of simple appendicitis which I recently observed, this proved a very definite and useful symptom. A fulness may also be detected in a few cases, but at the outset a distinct tumour is rarely to be felt. The tendency of this simple form is to rapid resolution; within twenty-four hours an improvement in the symptoms is usually noticeable, and the patient is convalescent in a few days; in some cases, however, there are frequent recurrences, while it must constantly be borne in mind that even the most simple variety may at any moment merge into one of the graver forms.

The second variety is characterised by the formation of localised abscess, and where the symptoms of the simple appendicitis do not subside in the first day or two, but on the contrary gradually increase, the formation of pus may be expected, and if a tumour is present and the skin becomes œdematous over the iliac fossa, the diagnosis may be made with confidence. The ordinary iliac or lumbar abscess which may ensue as a result of

appendicitis possesses no very special points of interest, and all are agreed that when of large size and very obviously fluctuating it should be opened and drained in the usual manner, without any attempt to extirpate the appendix. Should a fæcal fistula ensue it will in all probability close after a time, and recovery will be complete, or if a permanent fistula remain it may be dealt with more safely at a future date.

Where, instead of the moderate abscess occupying the iliac fossa or lumbar region, we have an intra-abdominal abscess of considerable size, the diagnosis may be not so easy, while the treatment must be prompt.

When extravasation of fæces suddenly takes place from a perforated appendix unlimited by adhesive inflammation, diffuse septic peritonitis is the necessary result. I am convinced that the majority of cases of so-called "idiopathic" purulent peritonitis in young people have their origin in perforation of the appendix. Such cases are to be diagnosticated by the much greater severity of the initial symptom, the frequent weak pulse, and the rapid onset of collapse and meteorism. Under these circumstances the sole chance of saving the patient's life lies in immediate laparotomy, and the surgeon who shirks this duty incurs a grave responsibility.

In conclusion, I would venture to suggest that appendicitis should be treated on the following lines: Let every case be watched with the greatest care, and visited at short intervals, remembering that while the majority will probably subside spontaneously, any one may suddenly develop into the more serious forms. To stop the vomiting by withholding food by the mouth is obviously sound practice, while anodynes in small quantities by limiting peristalsis may undoubtedly be useful, but given in large doses they may be a source of real danger, by masking the onset of grave symptoms which urgently demand operation. If at the end of twenty-four, or at most thirty-six, hours from the onset the symptoms are still progressive, the case ceases to be one of simple appendicitis, and the limits of purely medical treatment, I confidently believe, have been reached. There has within the last few years been accumulated abundant evidence, showing that amputation of the appendix, if undertaken early, is almost uniformly successful, while the condition found on opening the abdomen have often been such that recovery could scarcely have been hoped for by expectant treatment. By early operation the only hope is given to cases where diffuse peritonitis has commenced, and even in cases where abscess only is commencing, the patient is saved the risk of this bursting into the peritoneum and so becoming generalised, while the tedious convalescence necessary when a large abscess cavity is drained is obviated. It may be urged that by resorting to laparotomy at this early stage cases will be operated on that would have recovered spontaneously. If due care is exercised this is not, I think, a contingency at all likely to arise, and we must remember that a carefully-done aseptic abdominal exploration, in skilled hands, is almost devoid of risk. To have explored a case which proved to be only simple appendicitis is, in my mind, a much less serious mistake than to allow a case to drift on into hopeless septic peritonitis for the want of timely interference. Speaking from my own limited experience of abdominal section generally, I have frequently had cause to regret that I had delayed operation too long, but never that I had opened an abdomen prematurely. —*The Dublin Journal of Medical Science*, September, 1892, p. 194.

29.—ON ABDOMINAL TUMOURS FROM RETENTION.

By Jonathan Hutchinson, F.R.S.

In the examination of unusual conditions of abdominal enlargement it is difficult to make sufficient allowance for what is possible in the way of passive distension of the viscera. The urinary bladder may fill the belly, and even the gall-bladder may go far towards the same result. The ordinary cause of what is called "pot-belly" is accumulation of fæces in the intestines. In the rabbit, and perhaps in most herbivora, it is, strange as may seem the statement, usually the cæcal appendix which undergoes distension, whilst in the human subject the cæcum and colon is the tract involved. I am induced to ask attention to this matter on the present occasion from having recently read the following abstract of a case published by an Australian surgeon. It proves that a knowledge of what is possible is of great importance in order to the avoidance of most grave errors in practice.

"A remarkable case of fæcal accumulation is reported by Dr. R. Worrall in the *Australasian Medical Gazette*. The patient was a girl, aged thirteen, of a cachectic appearance, who had a rapidly growing abdominal tumour. Aperients were given, and for several days a large quantity of very offensive fæcal matter was discharged, but without any noticeable effect in reducing the volume of the tumour. As the child was evidently sinking, it was determined to make an exploratory laparotomy, the supposition being that the tumour was malignant. On opening the abdomen, however, the swelling was found to be an enormous accumulation of fæces in the cæcum and colon. The operation seemed to have had a stimulating effect upon the bowels, which acted almost continuously for a few days. In six days the tumour had entirely disappeared, and the child made a good recovery, her life having probably been saved by an error in diagnosis."

Dr. Worrall's narrative brings to my mind a precisely similar case which came under my own observation many years ago. I was consulted by my friend Dr. Mundie, formerly of Dalston, in the case of a young girl who had "an abdominal tumour." The child was about twelve years old, pale and emaciated, and her abdomen was as large relatively to her body as that of the last month of pregnancy. She was confined to her bed. I found to my astonishment that in pressing the fingers firmly upon the swelling an indentation was left, as if it were so much dough. Further examination convinced both Dr. Mundie and myself that this was due to distension, by soft fæces, of an enormously dilated colon. The rectum was found to be full of the same. Suitable measures were adopted—first the spoon, afterwards enemata, aperients, and nux vomica—and the child was soon relieved of the accumulation and restored to fair health.

It must never be forgotten that in these cases there is often no obvious retention. In the one which I have just narrated there was, if I remember correctly, reputed incontinence of fæces and not constipation. This is constantly the fact in instances of over-distension of the urinary bladder, and it misleads often both the patient and the practitioner. In a very early period of my career I once tapped a woman's abdomen with a small exploring trocar and drew off urine. Fortunately no harm followed, and I learnt a lesson. On another occasion, much more recently, I was taken into the country by an accomplished gynæcologist to assist in the diagnosis of a large tumour which had puzzled him. The result of our examina-

tion was that we passed a catheter and took the tumour quite away. The lady had been voiding urine freely, and this had caused the mistake.

In at least one case, on record, the abdomen has been laid open for ovariotomy, and the tumour then found to be a distended gall-bladder.

In the male subject I have known many blunders as to the diagnosis of a distended urinary bladder. Six or eight years ago an elderly gentleman travelled up from Devonshire to consult me with what he had been told was an incurable tumor in his abdomen. It was nothing but his bladder, but it presented the unusual feature of being not in the least tense, and, although it reached the navel, it felt loose, and could be easily pushed from side to side. Catheters were used, and after the not unusual attack of cystitis as a result, recovery followed. This patient is, I believe, at the present time in the enjoyment of good health. It is a curious fact that in this as in most other cases of painless vesical distension, no cause of obstruction could be discovered. They appear to be examples of simple atony.

During the last year I have attended another case exactly like that just narrated. An old gentleman, who averred that he had never in his life had the least difficulty in passing his water, had a very large abdominal tumour. A medical consultation took place, and a grave diagnosis was given. A week or two later I was consulted. I found the tumour quite lax, and easily swayed from side to side, but as it fluctuated and was in the middle line, I could not doubt that it was the bladder. The catheter proved the correctness of the surmise.

I may venture to offer the following categorical memoranda for the avoidance of error in the recognition of abdominal retention-tumours. (1) The distention, although enormous, is usually quite painless. (2) The retention is never absoluted, but only residual. There is always overflow. (3) The patient never assists the surgeon, but rather misleads him, insisting that there is free relief of bowels and bladder.—*Archives of Surgery*, April, 1892, p. 296.

DISEASES OF THE URINARY ORGANS.

30.—ON THE THERAPEUTICS OF URIC ACID GRAVEL.

By Sir William Roberts, M.D., F.R.S.

The treatment of calculous disorders at the hands of the physician must always in the main be of a preventive character. When concretions are once formed in the kidneys or bladder, and these are too large or awkwardly lodged to be washed out by the flush of the urinary stream, there is little prospect that they can be dissolved away by imparting solvent qualities to the urine. Nowhere, perhaps, is the aphorism that "prevention is better than cure" more pertinent than in the case of calculous concretions. The force—the chemical force—which is requisite to prevent the precipitation of uric acid in the urinary channels is almost infinitely small as compared with the force which is requisite to redissolve a concretion already formed.

I am satisfied, from repeated observations, that in the immense majority of cases of uric acid gravel in this country the immediate determining cause of the precipitation is excessive acidity of the urine, and that the paramount indication of preventive treatment is to diminish this acidity. All other schemes of treatment sink into insignificance in comparison with this. The use of alkalising agents for the prevention of uric acid gravel stands on a perfectly rational basis. It is chemically impossible for uric

acid to be deposited from an alkaline urine ; it may even be said that it is impossible for uric acid to be deposited prematurely—that is to say, within the urinary channels—from a neutral or feebly acid urine ; and as we possess the means of harmlessly reducing the acidity of the urine at pleasure, we have in our hands—in principle at least—the absolute power of preventing uric acid gravel. There are, however, some practical difficulties to be overcome. The disposition to uric acid gravel has a certain persistency. It may last intermittently for months or years, and it would obviously be too great a strain on a treatment which is purely protective, to require that a patient should take antacid medicines in sufficient doses and at sufficiently short intervals to maintain the urine continuously alkaline or neutral over so long a period of time ; nor is any such effort necessary. A study of the normal oscillations of the urine at different periods of the day and night leads to the inference that the liability to uric acid gravel rises to a dangerous intensity only during certain limited portions of the twenty-four hours.

The risk in gravel is almost confined to precipitations which take place within the precincts of the kidneys. Precipitations which take place in the bladder are harmlessly swept out at the next act of micturition. These latter probably only do harm when there is already a stone in the bladder, to which the crystals can accrete, or when a pouch exists in the viscus to receive and retain the deposit. What most concerns us therefore is the state of the urine as secreted by the kidneys rather than the state of the product accumulated in the bladder. For the sake of brevity and by way of distinction we may be allowed to speak of renal urine and vesical urine. These two products, no doubt, usually correspond sufficiently closely to enable us to judge from the urine of micturition what the character is of the urine secreted by the kidneys ; but this is not always the case. Vesical urine represents the aggregate work of the kidneys for several consecutive hours. During this interval the renal urine may have undergone sharp oscillations—from acid to alkaline, from dilute to concentrated, from richness to poverty in uric acid—but the vesical accumulation which is at length discharged by micturition will have a mean or average composition which entirely masks these oscillations. To arrive at a correct knowledge of the state of the urine as it flows from the kidneys it is necessary to obtain the secretion and to examine it at short intervals. Some years ago I made an extended series of observations on these lines. The subject of experiment was a healthy man of twenty-eight. The urine was collected at hourly, or at most two-hourly intervals throughout the twenty-four hours, except during the period of sleep, which was taken as a single interval.

The inquiry embraced observations on thirty-two complete days, besides a good many more on portions of days. The results of the investigations were incorporated in two papers published in vol. xv. of the *Memoirs of the Manchester Literary and Philosophical Society* and in the *Edinburgh Medical Journal* for 1880. Some of the conclusions arrived at have a direct bearing on the preventive treatment of urinary gravel. The character of the urine was shown to be most affected by the digestion of food, by prolonged fasting, and by sleep. It was found that a meal, whether it was composed of ordinary mixed food or of purely animal or purely vegetable substances, produced two constant effects. It depressed the acidity of the urine and increased its volume. And, conversely, prolonged fasting raised the acidity and diminished the flow of the urine. During the hours of sleep, which are also of course hours of fasting, the acidity of the urine reached its highest point and the flow of urine reached its lowest point. The proportion of uric acid in the urine, that is to

say, its percentage, was found highest during the time of sleep; but the hourly excretion was highest during the hours following a meal. Now, if we apply these facts in the light of the evidence previously adduced in regard to the factors which determine the precipitation of uric acid in the urine, we arrive at the conclusion that the period when there is most risk of precipitation in the kidneys is during the time of sleep, and especially in the early morning during the two or three hours preceding breakfast.

The deposition of uric acid is most imminent when there is a conjunction of the several conditions—that is to say, when the flow of urine is very scanty, when the secretion is hyperacid, and when it is rich in urates. Such a conjunction is most fully developed during the period of sleep. Sleep is a time of fasting, and therefore a time of hyperacidity of the urine—a time of recumbency and bodily immobility, and therefore a time when the renal stream approaches nearest to stagnation, and loiters longest about the purlieus of the kidneys. On the other hand, during the day and the waking hours the recurrence of the meals keeps the urine at a low degree of acidity, or even renders it for a time neutral or alkaline—the renal stream is comparatively full and rapid, and its descent from the kidneys is favoured by the force of gravity. During these hours, therefore, the risk of uric acid precipitation is reduced to a minimum, even in persons who have a distinct tendency that way. For, as I have repeatedly had occasion to observe, the urine of calculous subjects exhibits precisely the same cyclical diurnal variations as that of healthy persons, though not always in so marked a degree.

A study of these facts indicates that if we safeguard the night the day may be generally left to take care of itself. This theoretical deduction is fully in accordance with experience in the treatment of uric acid gravel. In the milder cases a single full dose of the alkalising agent taken at bedtime suffices to prevent the recurrence of the colicky pains and the discharge of uric acid concretions. For this purpose the citrates and bicarbonates of potash and soda are the most effective. The citrate of potash is, perhaps, on the whole, the best preparation to employ; it has very little taste, and it sits comfortably on the stomach. The dose for an adult should not be less than 40 to 60 grains, dissolved in 3 or 4 ounces of water. In severer cases a single dose is sufficient, and the early morning urine will still exhibit a morbid disposition to precipitate uric acid. In such cases a second but smaller dose should be taken about the middle period of the hours of sleep. This is less difficult to manage with the subjects of gravel than in healthy persons. There is commonly in calculous subjects a certain restlessness and a certain irritability of the urinary organs, which leads to an increased frequency of micturition, and such persons rarely pass the night without a call to empty the bladder. Advantage should therefore be taken of this break in the continuity of sleep to take the second antacid dose. In this way the entire night and early morning may be effectually guarded.

Cases of uric acid gravel, however, are not always to be got rid of on these easy terms. Now and then instances are met with in which the perversion is so great that the urine is disposed to deposit almost the day through, and in which the normal alkaline tide after meals seems to be well nigh abrogated. Under these circumstances additional doses of the antacid are required to afford the requisite protection; and the right times for these doses are two or three hours after breakfast, and two or three hours before dinner. But, so far as I have seen, these extreme conditions only last a short time—a few

days at most; and there is then a return to a less urgent state of things. It is, indeed, a marked character of uric acid gravel that it oscilates in intensity; it comes and goes in paroxysms, reminding one of the waviness of gouty phenomena. For this reason it is desirable to frequently note the state of the urine, and to ascertain its greater or less proneness to deposit uric acid, so that the administration of the antacid may be adjusted to the actual needs of the patient. There is no great difficulty about this. If a freshly-voided specimen of the urine of fasting—say the urine of the early morning or the urine secreted just before dinner—be set aside in a glass vessel in a warm place (so as to prevent the deposition of the amorphous urates) the imminence of precipitation can be easily observed. If precipitation be morbidly imminent, crystals of uric acid will appear perhaps at once, perhaps in an hour or a couple of hours. If precipitation be not morbidly imminent, crystals will not appear for several hours—perhaps not for two or three days. It is possible in this way to guage pretty accurately the intensity of the morbid tendency, and to regulate thereby the amount and frequency of the antacid dose, or to decide on its discontinuance.

A matter of some importance in the management of cases of uric acid gravel is the arrangement of meal times. Each meal acts on the urine as a dose of alkali, and also as a diluent, and in both these ways operates as a protective against uric acid precipitation. After the meal is absorbed and assimilated the urine becomes again increasingly acid and concentrated, and, as a consequence, increasingly prone to precipitate uric acid. Subjects of gravel should therefore be warned not to allow too long an interval to elapse between their meals. This precaution is especially needed as regards the interval between breakfast and the midday meal. The first meal of the day is, with most persons, very quickly digested, and its effects on the urine are correspondingly transient. At no time during the waking hours does the acidity of the urine tend to rise so high, and the volume of the urine to fall so low, as during the later portion of the interval between the first and second meal of the day. This interval should, therefore, be abridged. In this connection the pleasant institution of afternoon tea may come in for a word of commendation as serving to break the sometimes too long interval between luncheon and a late dinner.Some people interpose an unconscious interval of twelve or fourteen hours between their last meal at night and their breakfast next morning. This is a very risky proceeding on the part of calculous subjects.

The essential thing in the prophylactic treatment of uric acid gravel is to guard the urine from precipitating within the precincts of the kidney. And we shall, practically, have attained our object if we succeed, not in altogether preventing precipitation, but in postponing it until the urine have quitted the kidneys. A postponement for a short time, even half an hour, may make all the difference between a precipitation which is fraught with pain and peril and a precipitation which is practically harmless. Now, the protective effect of an antacid dose extends a good deal beyond the point at which the urine is rendered actually alkaline. For although all acid urines of medium density precipitate uric acid sooner or later, the time of the occurrence of that precipitation is immensely influenced by the degree of acidity of the urine. Other things being equal, the more acid the urine the earlier is the precipitation, and the less acid the urine the longer is the precipitation postponed. An antacid effect, therefore, which is too feeble to render the urine actually alkaline, may be quite sufficient to depress its acidity to such a degree as shall postpone the time of precipita-

tion until the urine has escaped from the kidneys, and even from the bladder.—CROONIAN LECTURES, *British Medical Journal*, June 25, 1892. p. 1349.

31.—ON THE SPECIFIC GRAVITY OF THE URINE IN DIABETES.

By SIR EDWARD H. SIEVEKING, M.D., Consulting Physician to St. Mary's Hospital.

All our authorities and our individual experience adopt a high specific gravity as an important indication of the presence of sugar in the urine. The following case appears to me to show that our urinometers may exhibit a much lower specific gravity than that ordinarily regarded as causing a suspicion of sugar, and that still sugar may be present. Not being a professed chemist, I naturally began to suspect, in the case about to be related, that my tools were not in proper order, and I therefore sent the urine to my friend Dr. Luff, the Government analyst, with a request for information on this point. His reply was that my tests were quite correct, the specific gravity of the urine 1010, and containing "a small quantity of sugar, the lowest specific gravity of any urine in which I have detected sugar." He also confirmed the fact of its containing a faint trace of albumen. The case is briefly as follows:—

A lady, aged sixty-one, was sent to me on July 5th of this year with severe symptoms of stomach derangement. Her history was to the effect that she had suffered six years previously from diabetes, but that, considering herself cured, she had returned to her ordinary mode of living. The day after her first visit I obtained a specimen of the urine, when the specific gravity was 1022; there was some albumen, and Fehling's test gave decided evidence of sugar. On July 7th, in consequence of the treatment, the urine had become alkaline, the specific gravity was reduced to 1012, there was less albumen, and sugar was still shown to be present. On July 9th the urine was faintly acid, specific gravity 1010; there was a faint trace of albumen, and a well-marked trace of sugar. Her symptoms of dyspepsia had disappeared, so the patient was able again to take substantial food. It was the urine of this day that Dr. Luff was kind enough to examine, and to send me the report I have given above. I saw the lady once more on July 14th, when the specific gravity had risen to 1014, and the tests still yielded evidence of the presence of both albumen and sugar. I recommended a watering-place to my patient, and presume that she has left London, as I have not seen her again.

Although this is undoubtedly an exceptional case, it appears to me to afford a decided warning to us all not to be too much guided by the urinometer alone. The examination of urine is universally regarded as a material help in the diagnosis of disease, but it may be fairly suspected that in many cases we have been too liable to assume that if our urinometers indicated a specific gravity below 1030, we might save ourselves the trouble of applying the tests for sugar.—*British Medical Journal*, September 17, 1892, p. 622.

32.—ON SOME SOURCES OF ERROR IN TESTING FOR SUGAR IN THE URINE.

By GEORGE JOHNSON, M.D., F.R.S., Consulting Physician to King's College Hospital.

It has happened to me not infrequently to be consulted by patients who were being treated for glycosuria, but in whose urine I found no trace of sugar. The explanation of this not uncommon error is the fact, not gen-

erally recognised, that normal urine contains two substances—namely, uric acid and creatinin—which resemble glucose in their reaction with the tests commonly employed for the detection of sugar.

The urines which are most likely to be erroneously diagnosed as saccharin are those of high specific gravity—1030 or more—and which contain the normal reducing agents in larger quantity than usual. Such urines, added to Fehling's solution previously boiled, rapidly decolourise the blue liquid, and would precipitate suboxide of copper, but for the fact that the ammonia resulting from the disintegration of the nitrogenous creatinin keeps the suboxide in solution. The phosphatic sediment which results from the action of the alkali in Fehling's solution has sometimes been mistaken for cuprous oxide. The reducing action of uric acid and creatinin upon cupric oxide has led to the erroneous assumption that a trace of sugar is to be found in all normal urines. That no sugar is present in normal urine is conclusively proved by the observation of my son, Mr. G. Stillingfleet Johnson, to the effect that when all the uric acid and creatinin have been removed from such urine by precipitation with mercuric chloride, which has no action upon glucose, all reducing action disappears, and no trace of sugar is to be found.

Moore's liquor potassæ test has, to my knowledge, misled an inexperienced observer in this way. Liquor potassæ often contains lead from the bottles in which it has been kept, and when this lead-contaminated liquor potassæ is boiled with albuminous urine, the sulphur of the albumen combines with the lead to form a dark sulphide, which an unpractised experimenter may mistake for the brown colour produced in saccharine urine.

Some years since I introduced the picric acid and potash test for glucose; and after ample experience of all other tests, including Dr. Pavy's ammonio-cupric modification of Fehling's, I feel justified in declaring that for accuracy and ease of application, both as a qualitative and quantitative test, it surpasses all others.

One great advantage is that all the ingredients employed in this method are stable, whereas it is notorious that all alkaline copper solutions speedily undergo change in keeping. The picric acid test, though not affected by uric acid, is, like copper, reduced by creatinin.

When a drachm of normal urine is boiled with the same volume of a saturated solution of picric acid, and half a drachm of liquor potassæ, a claret-red colour is produced, a colour which, compared with the standard, indicates what, if glucose were present, would be 0.7 grain per fluid ounce.

A good practical rule is this: That if in any specimen treated as before stated a red colour appears through the liquid in a test tube about half an inch in diameter, no glucose is present. The smallest quantity of glucose in addition to the creatinin, when acted on by the picric acid and potash test, renders the urine so intensely dark-red that no light passes through the liquid.

The presence of albumen, whether in small or large amount, does not interfere with the quantitative analysis of saccharin urine by the picric acid process, and this constitutes another advantage over the copper method, which requires a previous separation of the albumen.

And here I once more insist upon the fact that in picric acid we have the most absolutely trustworthy qualitative test for albumen; whilst Esbach's process with picric acid is a very accurate quantitative method.

By adding a solution of picric acid to an equal volume of urine, and subsequently boiling with half the proportion of liquor potassæ, we are enabled in the course of about two minutes to test for albumen and sugar in the same specimen of urine.

I have proved by innumerable observations that not a trace of albumen is to be found in normal urine, and that albuminuria, like glycosuria, is a pathological condition.—*British Medical Journal*, April 9, 1892, p. 759.

33.—ON DROPSY WITH KIDNEY DISEASE.

By Nestor Tirard, M.D., F.R.C.P., Physician to King's College Hospital.

[Dr. Tirard's lecture, from which the following excerpt is taken, is mainly a critical review of the Debate on Dropsy at the Royal Medical and Chirurgical Society in April and May, 1892.]

Dropsy is met with in the course of very various diseases, and the ultimate explanation of the condition seems to be incapable of being reduced to any single general law. I have elsewhere dealt mainly with the explanation of dropsy associated with heart disease, but incidentally referred to the probability that many cases of dropsy with chronic kidney disease were to be ascribed to a similar chain of events. This view has since been confirmed by many observers; and in the course of the debate at the Royal Medical and Chirurgical Society it was interesting to note that many of the speakers referred one form of renal dropsy to cardiac weakness, indicated by dilatation and failure of strength. One of the main contentions in my former lecture was that probably this failure of strength had been too much neglected in the estimation of the ultimate causes of cardiac dropsy, while the theory of backward engorgement had been, in my opinion, pushed too far, although the impeded flow of blood through the veins undoubtedly had a large influence in the causation of dropsy, inasmuch as it would account for the diminished reabsorption of fluid through the lymphatic system. Still, when these notes were written I was careful to indicate that all forms of renal dropsy were not readily explicable by any single theory, since I was convinced that under this apparently simple term more than one set of circumstances contributed to the result.

Viewed from a clinical aspect, there can be no doubt that renal dropsy occurs in two very distinct forms. The first, marked by general œdema, is the variety met with in cases of acute nephritis, more particularly when it is the result of scarlet fever. This general œdema is commonly coincident with the commencement of the nephritis, being frequently the first indication to attract attention. With children continuously under observation from the time of the rash, Dr. Mahomed considered that the onset of renal changes might be predicted from an increase of arterial tension, and he described a pre-albuminuric rise of tension. His observations have not, however, received general endorsement, many accurate observers having failed to find the condition he described. Ordinarily, however, the clinical sequence of albuminuria, of considerable reduction in the amount of urine and of dropsy is very rapid. Headache and malaise frequently herald the attack, and are speedily followed by puffiness, which commences about the eyelids and spreads to the face, the trunk, and the extremities. The swollen condition of the face gives a mask-like aspect, the features becoming absolutely devoid of expression. The œdema of the extremities renders movements difficult and clumsy, and the absolute bulk of the patient appears to be greatly increased. That the œdema is not confined to the subcutaneous tissues is often evidenced by some increase in the rate of respiration, which indicates a coincident œdema of the lungs, and which may be attended by cough and scanty expectoration. Another very characteristic feature of this acute form of dropsy is to be found in the extreme

condition of pallor all over the surface of the body—pallor which appears to result more from the œdematous condition of the skin than from any profound alteration of the blood-colouring matter.

Curious cases of post-scarlatinal dropsy without albuminuria have frequently been recorded. Some are mentioned by Dr. Goodhart in his valuable work on Diseases of Children, and in St. Bartholomew's Hospital Reports Sir Dyce Duckworth reviewed this subject some years ago. This condition had also been noted by Todd in his Clinical Lectures, and by Henoch in his book on Diseases of Children. I have frequently seen children with this anomalous condition at the Evelina Hospital, both in the wards and in the out-patient room. I may say, in passing, that it is generally held that the facts are deceptive, that a very transient form of albuminura may have been present before the child was brought under observation, or else that microscopic evidence of the nature of the case may be found, even though no chemical reaction may be given.

Reverting to the more common type of acute general œdema with indications of acute renal congestion, under favourable conditions this form of dropsy passes away as the case progresses. As the renal changes undergo improvement the volume of urine passed increases and the dropsy diminishes proportionately. Sometimes a similar result is attained as a consequence of the employment of hydragogue purgatives and of sodorifics, by which means the amount of fluid in the circulatory system becomes diminished, and hence the return of the effused material is favoured. These changes depend upon the general law that the absolute quantity of fluid in the vascular system is practically kept at a constant quantity, and that drain from one part of the system is speedily equalised by absorption from another. Mere diminution of dropsy is, however, not to be regarded as indicative of complete restoration. The quantity of urine eliminated may be increased and the dropsy may diminish, even though examination of the urine may show, by the presence of albumen and by its microscopic characters, that the case is gradually becoming chronic. Dr. Dickinson considers that this diminution of dropsy is to be looked upon as the result of some change in the capillaries as well as of hypertrophic changes affecting the arterioles by which the increased tension is combated. He assumes a conservative change in the arterioles as the explanation of the improvement so far as the dropsy is concerned.

The second form of dropsy is that met with when the renal changes are chronic; but this variety is really, I believe, divisible into two perfectly distinct forms, the one occasionally preluding the termination of the case and due to cardiac rather than to renal failure, this form, as before mentioned, being practically undistinguishable from the ordinary cardiac dropsy associated with venous engorgement, with dilatation of the heart and consequent failure of suction action and of propulsive force. This form of dropsy effects the lower extremities primarily, and only in extreme cases is the œdema found to proceed upwards. Another more truly renal form of dropsy occurring in the course of chronic kidney disease is that which appears to be only a modification of the acute variety. Very little reference was made to this condition in the course of the debate at the Royal Medical and Chirurgical Society. Most of the speakers mentioned the acute general dropsy of acute nephritis and then turned to the late form of dropsy of cardiac origin. It may, therefore, be of interest to remind you of the way in which Sir William Roberts deals with the question of dropsy in chronic Bright's disease. He says: "Dropsy is much oftener absent in the chronic than in the acute form. It is much more constant with the smooth large than with the granular contracted kidney.

Of the latter class, probably one third or one fourth of the cases run their entire course without dropsy. The effusion begins quite as often in the feet and legs as in the face; it is commonly slight and partial, but sometimes excessive and general. When the heart or liver is diseased, ascites and œdema of the legs become disproportionately prominent. The effusion is apt to change its seat capriciously, and it comes and goes from time to time. Sometimes it disappears totally for months and then returns again. More frequently, after a subsidence of the general dropsy, œdema lingers obstinately in one or two places—over the flat of the tibiæ, about the ankles, beneath the eyelids, under the conjunctival membrane or about the genitals. The presence or absence of dropsy generally, but by no means always, corresponds with the abundance or scantiness of the urine; but it has no relation to the amount of albumen." This passage has an important bearing upon Sir William Roberts' experience of the relative frequency of dropsy with the smooth large and with the granular contracted kidney.

Turning now to the theories suggested in explanation of renal dropsy, it may be convenient to deal first with those of Dr. Dickinson. He indicated there were two modes by which an exudation from the capillaries might lead to dropsy. If too much of this exudation was poured out or too little carried off, dropsy resulted; but in his latter remarks he appeared to confine his attention entirely to the former mode, although the teaching hitherto has been that both modes must be in operation simultaneously. Dr. Dickinson attributed the association of œdema and increase of tension in nephritis to "some condition of the capillaries due to abnormality of blood, which both hinders its passage and promotes transudation." In considering the transition from the acute to the chronic stage he noted the contradiction of the diminution of dropsy with further increase of arterial tension, and he maintained that the cardio-vascular change of advancing renal disease is the antagonist of dropsy. To make the contrast more complete, he said that there is "much dropsy with slight hypertrophy in nephritis, little dropsy and much hypertrophy with the granular kidney, so long as the heart remains undilated; and, finally, on the stretching of the heart, increase of dropsy and often pulmonary apoplexy." Somewhat later he makes the admission: "What the nature of the capillary obstruction is must be left undeclared. Changes in the blood may affect its passage in many ways. Fluids of different sorts pass through inanimate tubes with different degrees of facility, besides which the capillaries, though not muscular, have been demonstrated to be contractile." It will be seen that, so far as acute nephritis is concerned, our knowledge of the ultimate causation of dropsy has not been materially advanced. That a change in the nature of the blood is a prime factor has long been conceded, but it has sometimes been thought to result in flirtation or transudation under pressure, sometimes in diffusion or osmosis, as Dr. Dickinson himself points out. It is of course conceivable that by some capillary contraction, excited by the toxic influence of the blood, the pressure within the capillaries should be raised, the blood current retarded, the nutrition of the capillary wall impaired and thus transudation might be favoured. All this, however, though interesting, is mere speculation, and its force seems to be confined almost solely to the early stages of acute nephritis. These theories will not explain the condition of dropsy as it occurs in the course of a case dependent upon the smooth, large kidney, and the theories become least satisfactory when by them we attempt to explain the way in which the effusion "changes its seat capriciously" or "comes and goes from time

to time." The most convincing portion of Dr. Dickinson's paper on Renal Dropsy is that in which he accounts for the diminution of dropsy in cases of granular kidney, where he submits the view that the constriction of the smaller arteries must cut off the blood from the capillaries and presumably lessen the pressure in them and exudation from them.

Turning now to the views expressed by others in the course of debate upon Dr. Dickinson's paper, Sir George Johnson believed that "renal dropsy was the result of an active vital secretory process consequent on an accumulation of various morbid fluids and solids in the blood," and he summed up his views shortly as follows: "That the arterioles could impede or arrest the circulation; that there was no evidence that the capillaries possessed a similar power; that there was no evidence of an increase of capillary pressure in renal dropsy, but probably that it was diminished; that it was difficult to explain effusion through capillaries mechanically, and that renal dropsy was best explained by regarding it as the vital act of the endothelium, excited to eliminate certain noxious solids and fluids from the blood." Dr. Pye-Smith followed on somewhat similar lines, considering that renal dropsy might have some connection with the secretory power of the capillary endothelium, and he quoted Heidenhain's experiments in proof of the possession of such an active selective influence by the epithelium. Arguing from the distribution of fluid in acute renal dropsy that it was not subject to the action of gravity, Dr. Pye-Smith thought that it was probable that the condition was "not a dropsy at all, but an inflammatory effusion," and a little later he said he believed that the anasarca should be regarded as an "active inflammatory change in the connective tissues." It is difficult to harmonise this view with the ordinary sequence of events in other active inflammatory changes in the connective tissues; hence, although the suggestion is attractive and novel, this theory scarcely seems to be likely to gain many adherents. Dr. Douglas Powell thought that dropsy of renal disease was osmotic, and intended to compensate for deficient kidney secretion, increasing in proportion to the renal insufficiency and decreasing as it was re-established. Dr. Broadbent found so many points of resemblance in renal and cardiac dropsy as to suggest that there must be a similarity of causation, and this led him to look primarily for some hydraulic cause for renal dropsy. He thought Dr. Dickinson had probably furnished the most satisfactory explanation of renal dropsy yet formulated, and, without accepting it definitely, he was greatly disposed to regard it as in all probability the correct explanation. The frequency of acute dropsy with acute nephritis also received full consideration, but the dropsy of the large white kidney was almost left out of account, in spite of its greater frequency when compared with the dropsy seen with the small granular kidney. Of the clinical features there can be no dispute; they are matters of common observation. The difficulty lies in the explanatory theories. Dr. Dickinson assumes capillary obstruction, but does not define its nature. Sir George Johnson proposes an active vital secretory process. Dr. Pye-Smith suggests an active inflammatory change in the connective tissues, and Dr. Douglas Powell looks to compensatory osmosis. This brief summary will show how far the question is removed from a final solution, and will be enough, I trust, to prove that the subject may still be regarded as one waiting further observations and elucidation.—*The Lancet*, September 10, 1892, p. 597.

SURGERY.

GENERAL SURGERY AND THERAPEUTICS.

34.—A SIMPLE METHOD OF DRESSING OPERATION WOUNDS.

By Herbert Higgins, M.R.C.S., House Surgeon to Addenbrooke's Hospital, Cambridge.

Having, with the concurrence of the medical staff of Addenbrooke's Hospital, employed the following plan of dressing during the last eighteen months, I now venture to make it public on account of its efficiency, economy, and simplicity.

When practicable, the patient is given a bath, and after the part to be operated on has been shaved, it is thoroughly scrubbed with soft soap; the soap is then carefully washed off with clean water, and the surface sponged with a strong solution of corrosive sublimate. A piece of towelling soaked in sublimate solution is then bandaged on to the prepared surface, and not removed until immediately before the operation. I first used soft soap about two years ago, after having heard of some exhaustive experiments made in Germany with the object of testing its properties. These appeared to prove satisfactorily that it was remarkably effective for cleansing the skin, and simply invaluable for cleaning instruments.

Constant use has more than confirmed the claims made for it. If it is thoroughly and carefully used, it is more reliable than either ether or turpentine; the dark green semi-transparent variety is the best.

I believe many surgeons think that, provided an operation has been carefully performed with perfect antiseptic precautions, it is desirable to place next to the wound a soft unirritating aseptic material unimpregnated with antiseptics. With that object I have prepared such a material by keeping soft unmedicated guaze (costing 1d. a yard for 1,000 yards) in covered earthenware jars containing a solution of 1 in 500 of corrosive sublimate. A gallon jar holds about 100 yards, and, provided the solution is changed once a fortnight, the guaze will keep for an indefinite period, becoming, if anything, softer and whiter with time. A sufficient quantity of this guaze is cut off immediately before it is required and wrung as dry as possible. It is then put into a sterilized basin containing either boiling water or water that has been boiled. It is taken out by the operator and again wrung dry, shaken out loosely, and placed on the wound. The guaze is kept in the solution in order that it may be absolutely aseptic, and wrung out after soaking in boiling water to remove the corrosive sublimate, which might cause irritation of the healing surfaces. I believe it to be an essential and important detail to wring out the guaze as dry as possible, as mere excess of moisture is often as irritating as corrosive sublimate itself.

It then becomes necessary to cause all air that has access to the wound to undergo filtration through a medium such as cotton wool. If wool is used it should be put on in thin uniform layers and in large quantities. When a large quantity is used it secures the double advantage of absorbing and drying up the discharge and of maintaining a uniform elastic

pressure. The wool should be unirritating and aseptic. Salicylic wool best fulfils these requirements, but Mr. Hankin suggested that the most efficient material would be absorbent cotton wool sterilised by superheated steam, and kept in stoppered glass bottles, to be opened only by sterilized hands at the time of operation.

The practice of Addenbrooke's Hospital is, as far as possible, not to use drainage-tubes in operation wounds, and to apply firm pressure with the bandage. I have used this method in all the out-patient practice of the hospital, and it is rarely that we find a wound suppurate.

It will be obvious that such a mode of dressing as I have described would very considerably diminish the expenditure of a hospital. The guaze is of a good width and the cheapest that can be obtained; the corrosive sublimate has an almost nominal cost, and provided sterilised cotton wool be used, I feel sure that there can hardly be a more economical method for general use.—*British Medical Journal*, April 2, 1892, p. 708.

35.—ON THE USE OF IODINE TRICHLORIDE IN SURGERY.

By William T. Belfield, M.D.

Last autumn there appeared, in reports of bacteriological work from Berlin, certain allusions to the trichloride of iodine which induced me to investigate this agent clinically. The results are such as to require me to call attention to the apparent value of this substance in arresting the two bacterial processes most commonly met by the surgeon—tuberculosis and suppuration.

Since the trichloride has as yet no place in the Materia Medica, a word as to the substance itself seems appropriate; it is, as the name indicates, a simple compound of iodine and chlorine (ICl_3) made by passing chlorine gas over iodine; the result is a reddish crystalline substance emitting an odour of chlorine. It dissolves in its own weight of distilled water, and almost as readily in alcohol; either of these solutions mixes freely with glycerine in any convenient proportion. Though a union of two closely allied elements, it is a stable compound; I have kept the crystals and various solutions for five months unchanged.

When a few drops of a solution of the trichloride fall into normal urine, instant decomposition ensues, both chlorine and iodine being liberated in a nascent state; a deep brown colour (iodine) and bubbles of gas (chlorine) at once appear, while a mixed odour of the two elements becomes plainly perceptible at the mouth of the tube. To my colleague, Dr. W. S. Haines, Professor of Chemistry and Toxicology in Rush Medical College, I am indebted for the demonstration that this reaction is caused not by any of the urinary salts, but by an organic constituent of the urine, probably mucin. This clue led to the revelation that the same decomposition is effected by contact with any animal matter in solution —including pus, blood, saliva, infusions of meat, etc. The extreme sensitiveness of the trichloride to animal matter compels the use of distilled water for its solution; since ordinary hydrant water (though Chicago water is by no means the vile fluid pictured in certain Eastern papers) decomposes the compound in a few minutes.

The well-known bactericide properties of both chloride and iodine suggested, *a priori*, the surgical value of the substance which liberates each of these elements in its nascent state upon simple contact with the tissues. I have made tests with different bacterial cultures, and find, for example, that a one per cent. aqueous solution rapidly sterilises cultures of the

ordinary pus-producers—staphylococcus and streptococcus. Yet we have learned by experience, particularly Geppert's revelations concerning the bichloride of mercury, not to transfer deductions from the test-tube to living tissues. Satisfactory proof of clinical value must be furnished on these tissues directly.

During the past six months I have used the trichloride, at first occasionally, later continually. The cases may be summarised as follows:

1. *Surgical Tuberculosis.*—Iodine with its compounds has long been the surgeon's chief remedy for local use against tuberculosis; I therefore expected decided effects from the trichloride in these cases, and have not been disappointed. Of a considerable number so treated, comparatively few can be adduced as proof, because in most of them guaiacol was also administered internally; since the latter is an unmistakably powerful agent against surgical tuberculosis—as I know from a year's experience with it—the benefit derived from the mixed treatment cannot be ascribed solely to the trichloride. The following cases, were, however, treated with the trichloride alone: Two of bladder tuberculosis (diagnosis confirmed in one case by presence of the bacilli, in the other by discovery of a distinct ulcer); two, of epididymis tuberculosis with fistulæ (the latter rapidly closing under hypodermic injections, for the first time in years); one of tubercular abscess of prostrate; six of suppurating tuberculous cervical glands; two of tuberculsis of knee-joint in children; one of tubercular empyema.

2. *Suppuration.*—A miscellaneous line of cases, including infected wounds, abscesses, and malignant ulcerations.

3. *Ammoniacal Cystitis.*—Six cases caused by retention from prostatic enlargement.

4. *Venereal Sores.*—A detailed account of individual cases would be out of place in this communication; the results may be summarised in the statement that, in a reasonably extended experience and observation, I have never seen tuberculous processes so rapidly subdued by iodoform, nor suppuration by hydrogen peroxide, iodoform, or any other agent.

These cases are too few to be conclusive; yet the uniform and unusually rapid effect warrants the presentation of the trichloride for extended trial. It seems to combine the valuable properties of iodoform and hydrogen peroxide, with advantages over each peculiarly its own; it appears more energetic than iodoform in arresting processes dependent upon bacterial agency, both suppurative and tuberculous; it is soluble in water, and hence capable of hypodermic use as well as of gradation from innocuous dilution to caustic effect. Incidentally it is cheaper and far less offensive to the nostril. Over the peroxide it has the advantage of stability prior to use; prolonged contact with the tissues; the power to sterilise not only pus, but all moist animal matter; and adaptability to use on gauze.

Its advantages as compared with these agents are its caustic properties in strong solution, and the deleterious influence on instruments and clothing. Doubtless iodine intoxication could be induced by large quantities, but no instance thereof has as yet occurred to me.

I have employed it in the following forms: For hypodermic use, one-tenth to one-half per cent, solution in distilled water alone, or water four parts, glycerine one part. (In experiments on animals I have seen sloughing follow the hypodermic use of a two per cent. solution.)

For installation of deep urethra and irrigation of bladder, and for injection of serous cavities, the same solutions. For suppurating wounds, *irrigation with* one to five per cent. solution in water, either alone or with

glycerine. For putrid surfaces (cancerous), venereal sores, etc., five to twenty per cent. solution in equal parts of water, glycerine, and alcohol.

Solutions stronger than five per cent. usually cause decided smarting in ordinary wounds. The crystals are caustic to denuded surfaces. Gauze sterilised by boiling, immersed in one to ten per cent. aqueous solution and dried, retains the compound for an indefinite time.—*New York Medical Record*, July 16, 1892, p. 66.

36.—ON STREPTOCOCCUS OSTEOMYELITIS IN CHILDREN.

By W. W. Van Arsdale, M.D., New York.

[Dr. Koplik and Dr. Arsdale publish in *The American Journal of the Medical Sciences* for April and May, 1892, a very important and interesting communication, partly bacteriological and partly clinical, dealing with this subject. Dr. Arsdale, who is responsible for the clinical observations, concludes his part of the communication with the following :]

I offer the following considerations by way of recapitulation, and as therapeutic measures governing the conduct of the class of cases under discussion.

Since, in certain cases of acute suppurative joint affections, generally polyarticular, and occurring especially after distant wounds or inflammations of exposed surfaces, it is now established that we have to deal with an occult osteomyelitis involving the joints secondarily, but producing no clinical symptoms over the primary foci, and due to a streptococcus invasion of the system, I contend that these cases be considered as eminently surgical cases, and as proper objects for treatment in our surgical clinics.

Hitherto the pathology of these cases has not been fully recognized ; they have been regarded in the light of septicopyæmia, and have, from our present point of view, been neglected or inadequately treated. Not only the joint-cavities containing purulent effusions should be attacked, but the real foci of the disease situated in the bone marrow of the neighbouring bones as well, and these chiefly.

This attack should be made at as early a date as possible, so as to prevent a greater destruction of tissues than is unavoidable, and especially of the epiphyseal cartilage, and of the periosteum.

For this reason active measures should be taken to examine into the condition of the bone by incisions along the shaft ; and if the diaphysis appears partly or wholly necrotic, or if the periosteum appears loosened from it and inflamed, as much as is deemed necessary should be subperiosteally removed.

This resolve should not be influenced by the apprehension that subsequently adequate reproduction of the bone may not take place. If this should in any case happen, the help of auxiliary apparatus must be invoked, and especially for shortening, or a secondary amputation done when the patient has regained his strength.

Nor should the fact that the epiphyseal cartilages have become arroded and disintegrated be allowed to interfere with the extraction of the foci of osteomyelitis, for it is of the first importance to remove from the system all hotbeds for the propagation of toxines. Only the diaphysis should, however, be removed through the longitudinal incision. The cartilages should be treated in conjunction with the joint.

The joints should, at the same time, be treated by free evacuation and drainage ; if they be found completely disorganised, resection or arthrectomy should be done according to general surgical principles. As much as possible should be saved. Arroded or partially destroyed cartilages

should be treated by gouging, with preservation, if possible, of the epiphyseal line.

The technique, as well as the indications, will differ for the various joints.

Thus, for simple suppuration of the knee-joint in the graver forms of osteomyelitis, it will suffice to open the joint by longitudinal incisions on either side anteriorly to the lateral ligaments, the incisions also invading the large bursa under the quadriceps tendon.

For the hip-joint, however, the same affection will demand exsection of the head of the femur, because otherwise it is not possible to secure thorough draining of the infected cavity.

The astragalo-crural articulation cannot be sufficiently drained after simple arthrotomy, so that partial excision of one or the other malleolus is indicated.

The shoulder-joint may be exsected for suppurative disorganisation with more propriety in the adult, in order to prevent the ankylosis which would result after simple arthrotomy; but since in children interference with the epiphysis of the humerus means almost complete arrest of development of the bone, we may hesitate to do more than simple arthrotomy. Happily, the shoulder-joint appears to be less frequently attacked than the other joints. In most cases the elbow- and wrist-joints can likewise be sufficiently drained only after partial excisions, owing to their complex anatomical formation.

As to the smaller joints of the hand and foot, no general rules can be laid down; very rarely, I believe, will amputation be called for. Such smaller bones as are attacked may be taken out subperiosteally, if possible. If the joints cannot be properly drained, exsection is here indicated. The smaller foci, however, do not threaten the economy in the same measure as do the foci in larger bones, and oftentimes we see an attacked small bone recover from its inflammation without necrosis.

As to the choice of antiseptic methods and dressings in these operations little need be said. Active antisepsis is to be preferred to simple asepsis as affording more success in combating the septic processes we are attacking. Sublimate, carbolic acid, and especially iodoform, however, should be avoided in the cases of young children, as too readily leading to intoxication in their prostrated condition. Creolin, in one or two per cent. solutions, freshly prepared, has proved satisfactory to me in the cases here alluded to, especially when we cannot be certain of removing all the irrigating fluid from the joint-cavity.—*The American Journal of the Medical Sciences*, May, 1892, p. 556.

37.—ON THE TREATMENT OF SPINAL AND OTHER TUBERCULAR ABSCESSES.

By Frederick Treves, F.R.C.S., Surgeon to the London Hospital.

[Mr. Treves deals with this subject in a clinical lecture, which contains the narrative of eight highly successful and interesting cases; these are not reproduced.]

In order to ensure the most complete and ready evacuation of the pus in psoas abscess I urged—in a paper read before the Royal Medical and Chirurgical Society on January 8th, 1884—that such abscesses should be opened from the loin. I described the steps of an operation whereby the psoas muscle could be safely reached through an incision at the outer margin of the erector spinæ. The wound thus made opened the abscess

at its most dependent point, and evacuated the pus by the most direct route. It enabled the surgeon also to examine the vertebræ in the lumbar region, and in children and slender adults such an examination is readily carried out. In the first case recorded I removed from the spine a large sequestrum involving the greater part of the body of the first lumbar vertebra. The patient was a woman aged twenty-one. Since then there have been many cases in my wards in which the simple draining and frequent irrigation of a psoas abscess have been followed by cure, but in these successful cases the patients were young children.

The lumbar incision is not possible when such deformity exists as brings the ribs close to the iliac crest, nor is it easy in the person of a very tall and fleshy adult. The invention of the sharp spoon and the method of removing chronic inflammatory deposits by scraping introduced a new element into the treatment of tubercular abscesses. Mr. Barker and Mr. Bilton Pollard have reported cases of excision of the hip in which the inflammatory tissue was removed by scraping and flushing with hot water, and in which primary healing followed without the intervention of a drainage-tube. These cases are very striking and remarkable, and afford a strange contrast to the results obtained in the past.

It is difficult to trace the origin of the method of treating tubercular abscesses by incision and scraping, followed by closure of the wound without drainage, but the procedure is very conspicuously associated with the name of M. Tiélat, who carried out a large number of these operations, for the most part in small abscesses, in 1887. Side by side with this plan of dealing with the chronic abscess comes the method by repeated aspiration, followed by the injection of a solution of iodoform. This procedure would appear to have been originated by Verneuil, and has been very extensively employed. Numerous examples of cure by this method have been reported. Such examples disarm criticism, but on theoretical grounds it is impossible not to urge certain objections against the procedure. In the abscesses we are now dealing with there is a considerable quantity of semi-solid matter which cannot be removed by the aspirator. This and the abscess "sac" are left behind, and would appear to provide the very material necessary for the foundation at a later period of a "residual abscess." In dealing with all tubercular affections a very free removal would appear to be of primary importance.

The operation.—An incision is made into the abscess at the most convenient spot, and, whenever possible, at the most dependent point. It should be so placed as to command all parts of the abscess, and to allow of access to its remotest quarters. It must be made through perfectly sound skin. The pus is allowed to escape, and the abscess cavity is then washed out with a hot solution of corrosive sublimate of the strength of 1 in 5000. For this purpose a Leiter's irrigator of the largest size, and suspended at a height of twelve feet, is convenient. Many gallons of the solution are required. When the fluid returns clear the fingers are introduced into the cavity, and the caseous semi-solid matter which exists in such quantity in these abscesses, and which is not wholly removed by flushing, can be dislodged. By means of the fingers also septa in the cavity may be broken down, diverticula may be opened up, and by the aid of the finger nails a considerable quantity of the smooth slimy lining membrane of the abscess may be removed. Repeatedly the cavity is flushed out with the warm solution. The lining wall of the abscess is now carefully and thoroughly scraped with a Volkmann's spoon until the whole surface has been laid bare. Now and again the process is interrupted to allow of the cavity being once more flushed

out so as to remove such débris as may have collected. The simple Volkmann's spoon has appeared to me to be a more convenient instrument than the ingenious flushing gouge invented by Mr. Barker and used by him with such pronounced success. The sharp spoon is more readily manipulated and is more completely under control, and in dealing with thin-walled abscesses within the abdomen this matter must be regarded as of vital importance. The rushing of water during the process of scraping with the gouge is a little confusing, and is apt to interfere with the precision of one's movements. In dealing with tubercular joints, Mr. Barker's instrument leaves little to be desired. After the scraping and flushing have been persevered with until all the lining membrane appears to have been removed there comes what I believe to be the most important part of the operation—the rubbing of the abscess wall with sponges, and the thorough drying of the cavity. I use small hard Turkey sponges in holders. The holders are shaped like slender pressure forceps of the largest kind, and are about a foot in length. By means of the sponges the whole of the abscess wall is vigorously rubbed, and it is surprising what a quantity of inflammatory material in the form of the slimy lining membrane, and even cheesy pus, comes away upon these sponges. It is at once made evident that much that it is necessary to detach may escape the sharp spoon, and that the stream of water will only remove such matter as is quite free. The sponging process is tedious, but it leaves the cavity practically dry. The abscess cavity is now a raw space almost comparable to that which would be left after the removal of a large and adherent tumour. If the proceeding have been successful, the great space should be free of all altered pus, and bared of all the lining membrane. In deep abscesses it cannot always be demonstrated that this has been done, but no pains should be spared in endeavoring to effect it. The operation may occupy more than sixty minutes when deeply placed abscesses in adults are being dealt with. The oozing of blood, which is at first considerable, soon ceases, and the last sponge used should be withdrawn practically unsoiled. The incision is now closed entirely with silkworm gut sutures. No antiseptic is introduced into the abscess cavity, and of course no drainage-tube is employed. A dressing of Tillmanns' linen or cotton-wood dusted with iodoform is applied, and, whenever possible, I endeavour to obliterate the abscess cavity to some extent by suitably placed pads and pressure.

In the simplest cases the cure is rapid and complete ; the wound heals by first intention ; there is no pain and no rise of temperature ; the abscess is as completely removed as is a dermoid cyst which has been dissected out. A sufficient time has to elapse to allow of sound healing, and after that the patient may be considered to be well. Abscesses in young children often do so well after even the most rudimentary treatment, that they can hardly be quoted as demonstrating the superiority of a particular method. Large chronic abscesses in adults are, however, not so amenable to the simpler surgical measures. Had two of my cases belonging to the latter class been treated merely by incision and drainage, there would have been great risk of tedious suppuration, of long confinement in bed, of hectic fever, of a wearisome sinus, and of a greater or lesser degree of exhaustion. As it was, the whole trouble healed up practically under one dressing.

An abscess which has been already opened by a simple incision, and which has become utterly septic, may be treated in the manner described, and may yield an excellent result.

In dealing with spinal abscesses certain difficulties arise, the chief of

which depend upon obstacles in the way of the complete evacuation of the abscess and the complete removal of its lining membrane. The depth of the cavity, its great length, and its position within the abdomen (assuming it to have followed the psoas muscle), place difficulties in the way of the treatment I have detailed. In four cases two of the patients were children and two were adults. In the former the operation was carried out a little late. In one of these the skin gave way, and an open wound resulted. It must be noted, however, how the scraping and irrigation had affected the issue. The cavity seems to have closed almost from the first. It contained no material capable of developing a rapid decomposition. There was no rise of temperature, and the resulting sinus was not long in closing. In such examples of abscess, it must be remembered that another element assists in the healing of the suppurating cavity, and that is the long confinement in bed, rendered necessary by the disease in or about the vertebral column. In one case the abscess was opened twice. It would have been better if the second incision could have been replaced by aspiration and the injection of a solution of iodoform. As the greater part at least of the curdy contents and the thick lining membrane had been already removed, the condition of the cavity was favourable for such treatment. The abscess, however, was comparatively small, and was so deeply placed near the median line as to render aspiration distinctly dangerous. I had already ascertained that its anterior wall was thin and was in immediate relation with the peritoneum and non-adherent intestine. I think, however, that this should be the treatment aimed at whatever aspiration may be attempted with safety, and the surgeon is satisfied that the abscess cavity has been thoroughly evacuated at the first operation.—*The Lancet*, May 21, 1892, p. 1123.

38.—ON A METHOD BETTER THAN SUSPENSION OF APPLYING A PLASTER JACKET.

By Richard Barwell, F.R.C.S., Consulting Surgeon to Charing Cross Hospital.

Certain drawbacks and inconveniences are connected with suspension of the patient while applying a plaster-of-Paris jacket; of these may be more particularly selected painful pressure on the jaw and occiput, as well as on the axillary plexus of nerves. The object of suspension is to straighten out the abnormal curve of the spine, so that the jacket when complete may be straighter than the unsupported back of the erect patient, thus preventing intervertebral pressure, and by successive applications correcting, as far as possible, the kyphosis or hump which must result if, such means being omitted, the diseased vertebræ synostose. Children, therefore, whose pelves and lower limbs are small and light, obtain little or none of such benefit; while adults with heavier lower developments may gain more temporary rectification, but can bear the pressure on the points of suspension a commensurately shorter time. Hence the plaster must be of such a quality as will set quickly; no gum or other colloid must be combined with it. The jacket must be completed with great rapidity, and not infrequently the patient must be taken down before hardening is so perfect as to obviate cracking and yielding; for, of course, when suspension ceases there is a tendency to recurrence of the curve, which a hastily applied jacket is too weak to resist. Much experience and practice may up to a certain point minimise these evils but cannot eliminate them.

I have therefore for some years past ceased to employ suspension in kyphosis, and have straightened, as far as safety will permit, the patient's spine by a modification of my method of rachilysis, which, used differently,

has proved successful in lateral curvature; the force—viz., traction by a system of pulleys—being used while the patient is sitting. It is thus carried out in a case of dorsal kyphosis: The patient being clothed in a skin-tight knitted vest, and with the usual parts padded, sits on an ordinary office stool about two feet and a half high, between two opposing walls in which certain hooks, etc., are fixed as for rachilysis (Fig. 1). A three-inch wide piece of webbing, with strong cords at each end, is secured to one of the back legs of the stool, and, passing over the top of the patient's thighs sufficiently tightly, is also secured to the other back leg (1). A strip of moderately strong unbleached calico, broad accordingly to the size of the patient, crosses the abdomen on and below the umbilicus. This in the position under consideration I will name "counter-traction band." By means of the cord at each end it is fixed at the proper degree of tension behind (2). A similar strip of calico passes across the back on a level with the point of greatest curve. This is the "traction band" (3). If the

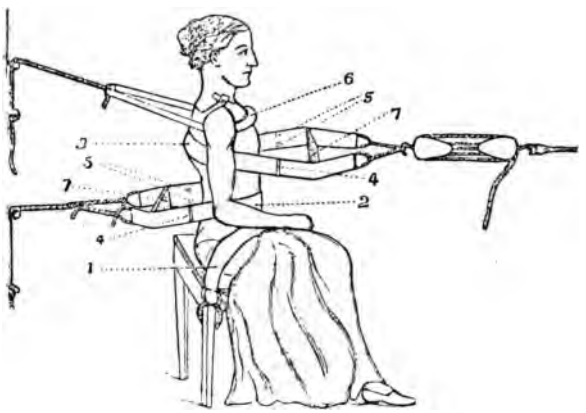

FIG. 1.

projection be very sharp and angular, it is well to make a slit, lengthwise as regards the belt, two or three inches long, so that one of the laps may lie above, the other below the most prominent vertebra; a cord secured to both ends of this forms the whole into a loop, into which is hitched the hook of the system of pulley. These two strips of calico would always crumple up and run into ropes as soon as tension comes on them unless prevented, which is easily done by having at hand four slips of soft wood a little longer than the belts are broad. They are to be placed outside the calico pretty close to the patient's body (4), one on each side, and into them through the belts, and just at their edges, are thrust surveyor's pins (5). Lastly a one-inch wide loop of webbing, properly padded, passes across the manubrium sterni under the axilla on each side, and is secured by a cord running through a single pulley at proper tension behind (6). This I call simply the "lanyard." Now the surgeon begins by making very slight traction by means of the system of pulleys, observing if the tension of his other cords is correct, and places the spine in proper position; if not, it can easily be altered by means of the single pulleys through which the cords run. All being correct, he increases the tension, and slips between the laps of both traction and counter-traction bands a board of wood, from ten to twelve inches long, in order to prevent lateral pressure on the thorax and abdomen (7). He now increases traction up to the desirable point, recollecting that the Astley-Cooper system of pulleys,

which is that which I use, multiplies his manual force by six. When as much traction as he may deem safe has been attained, he fixes the pulley cord by twisting or knotting it to the loop of the traction belt, thus causing the spine to be immobile during application of the jacket.

As this sitting position and slight restraint are either not at all or but very little fatiguing to the patient, the next procedures need not be hurried. Moreover, in order to ensure greater hardness and durability to the jacket, some colloid may advantageously be mixed with the water in which the bandages are soaked. The best and most convenient material I find to be liquid glue (Le Page's). About a teaspoonful to the quart of water causes the plaster to set very firm and hard in from twenty minutes to half an hour, according to the warmth of the room. In winding on the bandages those parts of the traction and counter-traction belts which lie close and tight to the patient's body must be included and covered in the turns; those parts which project and stand away from the trunk are left out. By putting on the bandages not straight but somewhat obliquely, the chest and abdomen may be covered, with the exception of some little triangular spaces lying under the shelter—the eaves, if I may use such a term—of the projecting parts; these are afterwards dealt with.

When the plaster has become firm the traction should be slowly relaxed and the calico belts cut away about three inches from the trunk, and any little roughness in the angle where they begin to project removed. Then the triangular interspaces should be wetted and covered with plaster soaked in the gluey water. The calico lappets (the three inches not cut away) are then laid over the newly applied plaster and covered by rubbing into them the same material. If the surgeon has to deal with a dorso-lumbar, or with simply a lumbar kyphosis, the lower belt becomes the traction band, passes to the front, and is attached to the pulleys; the upper belt is then the counter-traction band, passing across the front of the chest as high up as one wishes, is secured behind. No lanyard is required.

The advantages of this method over suspension may be thus summed up. 1. Hardly any appreciable fatigue to the patient. 2. No painful pressure on any part. 3. The amount of force employed in straightening the spine instead of depending on such chance condition as the patient's weight, lies entirely within the surgeon's choice. 4. The surgeon may occupy what time he finds necessary in putting on the bandage, and can make a much more perfected one than when hurried. 5. The admixture of glue renders the jacket very durable and strong, capable of upholding a heavy much-curved trunk. 6. Less plaster is needed, therefore the jacket is lighter. 7. Bits and flakes of plaster do not chip away into the clothing and bed. 8. If a jacket removable by cutting down the middle be desired, a much more springy and less friable one, more easily taken off and put on without cracking, can thus be obtained.—*The Lancet*, April 9, 1892, p. 792.

39.—ON THE TREATMENT OF TUBERCULOUS GLANDS IN THE NECK.

By Charles T. Poore, M.D., St. Mary's Hospital for Children, New York.

The medical management of tubercular glands is far from satisfactory. The general routine treatment with tincture of iodine is worse than useless. The indications are for *soothing*, not *stimulating*, applications. It is safe to say that painting with tincture of iodine tends to increase the tumefaction rather than diminish it. Poultices should have no place in

the management of these cases; they make the skin sodden, and increase rather than retard suppuration. If an abscess has opened they are worse than useless. Moist heat encourages bacterial growth, lowers the vitality of the skin, and favours undermining.

Rest to the neck, tonic treatment, change of air, if possible, the removal of any nose, throat, or ear trouble, and maintaining the scalp in a healthy condition, are the means best calculated to be rewarded by success in cases in which much tumefaction has not taken place. Tubercular deposits in the gland differ in no respect from that in other portions of the body. They follow precisely the same course, and should be viewed from the same stand-point.

It is perfectly useless to attempt to treat a tubercular gland that has attained any size by medication with the expectation of its cure. It will always remain a diseased gland, and, in the vast majority of cases, will eventually suppurate.

The best treatment for a tubercular gland is its enucleation. If removed before its contents have infected the surrounding tissue it prevents the formation of an abscess; and if suppuration has taken place, an operation shortens its amount and duration by months, or even years, obviates unsightly scars, and prevents the infection of other glands. For these reasons the surgical management of this affection is to be advocated.

As to the question when an operation should be done, it is always better to anticipate the formation of a peri-glandular abscess, and, in order to do this, all chronically enlarged glands of a tubercular nature, if of any size, should be removed, as by so doing time will be saved, and the scar resulting from the incision will only be linear, and in time will be scarcely noticeable.

In regard to abscesses about the neck, the rule should be that they be opened, their cavity thoroughly curetted, together with any diseased glands, as soon as possible, and, above all, in no case should a poultice be applied.

The method of operating that in my hands has been proved satisfactory is as follows :—

In Cases unaccompanied by an Abscess.—After disinfecting the skin, an incision is made over the enlarged gland if there is only one, or over the most prominent if more than one is involved, down to its capsule, the incision being, as a rule, not more than an inch or an inch and a half long. Into this cut the gland is made to protude as much as possible by grasping it behind. If it is non-adherent it can be separated from its loose connection by means of a director, or, what is better, an artery needle used very much as stabismus hooks are used in enucleating an eye, working around the gland with the hook and a pair of blunt curved scissors until the hilus is reached. If it has been thoroughly freed from all its other attachments the gland can now be forced entirely out of the wound, its only attachment being at the point where the vessels enter. A catgut ligature is then applied around these, and the gland cut away. Unless some vessel has been divided in the soft parts there will be little, if any, hemorrhage. If there are other diseased glands near the one removed they can usually be reached through the incision already made. If, however, this cannot be done, the incision can be enlarged or a new one made. It is often astonishing how much can be done through one opening.

If a gland is adherent its removal is tedious and not safe; for such the better plan is to open the capsule and thoroughly remove its contents with a Volkmann's spoon, leaving the capsule behind. If the capsule has been opened during the operation, or its contents have perforated it before the

date of operation, infecting the surrounding tissue, the same plan can be adopted, only the spoon must be used freely over the whole extent of the abscess cavity ; all diseased tissue *must be removed.*

In those cases where a number of small or moderately enlarged glands are matted together, and when from their situation there is danger of injury to important vessels or nerves, it has always seemed better to remove such as can be safely and easily done, thoroughly curetting the cavity of any abscess that may exist, dividing the capsule, and removing the contents of as many diseased glands as possible without making large incisions and tedious dissections. In some of these cases the glands are so situated that their thorough removal is easily accomplished without any danger to other structures, while in others a formidable operation will be required to remove them. A good result has followed in all cases where this plan has been adopted, although a second and sometimes a third, operation of curetting has been called for.

In old cases where abscesses have been allowed to pursue their natural course and sinuses exist, there is often found much tubercular tissue within their cavity. In such cases a thorough curetting will effectually remove all infected tissue, and a rapid closing of the cavity is the result. Where the diseased gland is deeply seated, and where there exists a superficial abscess connected with the gland by a small sinus through the fascia, the diseased gland can be easily removed by passing a small or moderately-sized Volkmann's spoon through the sinus and curetting the gland. Unless this is done, the opening in the skin will not close until all infected tissue has been eliminated. After clearing out these cavities and glands as thoroughly as possible with a Volkmann's spoon, a moderate-sized sponge, dampened with mercury solution, is caught in a locked forceps and forced into the cavity and then turned around several times. This will remove and bring away any diseased tissue that may have been left by the spoon.

If the skin is thin, undermined, and unhealthy in appearance about a sinus, it is freely removed.

After the clearing process has been finished the wound is well washed with mercuric solution (1 to 1,000), then dried with a sponge and iodoform dusted in, and the parts brought together as thoroughly as possible with deep and superficial suture so as to leave as few "dead spaces" as possible. It will sometimes be found, however, that the parts cannot be sutured so as to close entirely the deeper portions of the wound. In such cases the wound has been stuffed with iodoform gauze.

In regard to the skin wound one of two methods has been adopted—either to close it with a subcutaneous catgut suture, or, if the abscess has been subcutaneous or the gland large, and its removal has left a considerable subcutaneous cavity, the needle, armed with the suture, is passed from without inward some distance from the edge of the incision through the whole thickness of the skin into the cavity ; then, on the opposite side of the cavity, from within outward to a corresponding point upon the other side, then back again, and repeated until a sufficient number of continuous sutures have been passed, the last ending on the side first perforated. The two ends are then tied tightly together, bringing the inner walls of the cavity in apposition and causing a prominent ridge on the neck. The advantage of this is that it helps to obliterate the cavity, and, when the catgut is absorbed, the skin assumes its normal position. It has been found to be no small gain.

In regard to drainage, for some time rubber drainage-tubes were used, but of late they have been abandoned. Their points of entrance were always slow in closing, and seemed to increase the amount of cicatricial

tissue. In their place horse-hair has been substituted, a bunch being held in place by the skin suture, its ends protruding from either extremity of the wound ; it affords ample drainage. It is easily removed, and does not leave the cavity always seen when rubber tubing has been used.

It is not to be supposed that in all cases of operation upon tubercular glands of the neck the wound closes up at once. In many, owing either to imperfect eradication of the diseased tissue, error in after-treatment, or new points of disease showing themselves, suppuration follows. Sometimes after a wound has closed it will break down again and discharge, or a sinus will persist, the edges of the wound assuming an unhealthy appearance. In such cases the wound must be reopened. It will then be found that the old cavity has refilled with tubercular matter and pus, a neglected gland having reinfected the parts ; or, if no gland be found, it is due to diseased tissue that had not been removed ; but, whatever its cause, unless the cavity is again cleaned out no permanent benefit will be derived from the operation, and a sinus may continue to discharge for months.

In other cases, although the old point of disease may never give any trouble, new glands may become enlarged and call for another operation. Thus in one child I have operated ten times for the last four years. She has had no return, and is a perfectly healthy-looking girl.

The ultimate result after the surgical treatment of tubercular glands is that, if the gland is removed before a periglandular abscess has formed, the resulting scar will be linear and scarcely visible. If, however, an abscess has formed and the skin is much undermined and unhealthy, the amount of cicatricial tissue will be in direct proportion to the amount of diseased skin. In other cases, even in the presence of an abscess, a linear scar may be formed.—*New York Medical Journal*, June 25, 1892, p. 706.

40.—THE TREATMENT OF EPISTAXIS.

By T. K. Hamilton, M. D., Physician to the Throat Department, Adelaide Hospital.

All modern authorities agree in impressing the necessity of a thorough examination of the nasal cavities to ascertain, if possible, the exact position and nature of the hemorrhage before any treatment be adopted. When the examination is made, unless the bleeding be very profuse, or the surface from which it comes be large—as it is, for example, when a long spine is sawn off the septum—we can nearly always find the exact spot from which the bleeding is coming, and then the treatment, in my opinion, is the application of the galvano-cautery point, not at too white a heat. The application should be thorough and, in the case of ulcer, to the margins as well as to the floor. The cautery I have found prompt and effective in putting a stop, once and for all, to a hemorrhage of perhaps days' or weeks' habitual recurrence.

In those cases where the hemorrhage is very profuse and we cannot find the bleeding point, which for practical purposes are usually surgical ones, we must proceed to use other means. Let us assume, for the sake of illustration, that the case is one of operation for the removal of a spine from the septum : we have used cocaine prior to the operation ; its effects have passed off, and the hemorrhage still continues unabated ; and here let me remark, in passing, that as cocaine temporarily empties the blood-vessels, it is not until its effects have quite passed off that we can tell what the real amount of hemorrhage is going to be, for this reason it is best to keep the patient under observation in all cases, even though the operation be a trivial one, until a half-hour or so of the cocaine anæsthesia has elapsed.

To return: having disposed of the cocaine anæsthesia, and the hemorrhage still persisting, the next step probably should be to irrigate with hot water, using the continuous douche. The nose is very tolerant of hot fluids, and temperatures ranging from 127° even up to 140° F. can be borne. This clears away all imperfectly formed clots, and thus favours the firmer coagulation of the oozing blood. The addition of iodine to the water in the proportion of 1 to 10,000 has been highly recommended, not only to make the fluid antiseptic, but as a hæmostatic, since iodine is said to check parenchymatous hemorrhage from recent wounds.

This having failed, peroxide of hydrogen might be tried. The undiluted solution should be sprayed into the nose. It is a most powerful germicide, and when mixed with the blood forms a firm clot, which by its pressure controls the bleeding. The only difficulty attending its use is that it is hard to get and keep it pure.

Antipyrin has of late come into notice as a hæmostatic, and, in my hands, has frequently given most satisfactory results. It may be used in solution prior to, and during, the operation, and in solution or the powder itself subsequently. I have had a wool made by soaking absorbant cotton in a saturated solution of the drug, and it seems to answer well and to possess in a high degree the properties ascribed to it.

Perchloride of iron is now mentioned only to be condemned for intranasal use. Iron, as we know, forms with blood a very disagreeable mass, and one also through which, it is said, blood will flow; besides, hemorrhage frequently recurs when the plug is removed, from the tearing of the mucous surface to which it is adherent. Powerful astringents, such as the perchloride, have also been credited with causing anosmia, and even contributing towards more serious results, such as perforation of the septum and middle-ear inflammation.

The last astringent to which I shall refer, and in my experience sometimes the most efficient of all, is matico. Greville MacDonald recommends a powder of equal parts of powdered matico leaves and starch. I have found this or the plain powdered matico most valuable in stopping an inveterate and persistent oozing when other remedies have been tried in vain.

There is yet one other means which may be tried before plugging is resorted to, and that is pressure. When the source of hemorrhage is near the front a pledget of lint can be inserted into the nostril, and continuous pressure made with the finger on the outside of the nose.

If all the foregoing measures fail to arrest or markedly modify the severity of the hemorrhage, plugging the nostril should be resorted to before the constitutional symptoms of excessive loss of blood supervene.

It will be found that the posterior as well as the anterior plug will, in such cases, usually be necessary. This applies more particularly to the cases in which operations have been the cause, because then the lesion is extensive, and often extends some distance back into the nostril. Having determined to plug, how shall we proceed? It is of the greatest importance both for the safety and comfort of the patient to attend to certain details in the application. The nostril is first thoroughly douched with hot iodised water until all clots are removed, then an instrument is passed down the nostril so as to insert the posterior plug first. For this purpose a soft rubber catheter is much preferable to Bellocq's canula. This latter is an awkward and cumbersome device, and usually constructed with a curve inappropriate for insertion into the nasal cavity; besides, the nostril is not at all tolerant of metallic instruments, as they wound the sensitive mucous coverings of the turbinate bodies; so, for ease in introduction and

comfort to the patient, the soft rubber catheter is much the best. If there be any obstruction in the nostril it may be necessary to introduce a stylet into the catheter to get it passed down the inferior meatus. This can be easily withdrawn when the instrument reaches the nasopharynx, and when the catheter is seen in the pharynx a forceps is used to seize it and pull it forward with its thread into the mouth.

Of all materials used, iodoform gauze seems to me to be the best for making the plug. Gauze is softer, more elastic, and more adaptable than wool or lint, and when the plug is medicated with iodoform it can be left *in situ* with perfect safety two or three days. This is a very decided advantage. Having inserted and fixed the posterior plug in the usual way, we next proceed to fill up the anterior part of the nostril. Here again iodoform gauze is the best material to use, and for ease of insertion and subsequent removal nothing can surpass a continuous strip of the gauze for this purpose. Any one who has once tried this continuous plug, after having used pledgets of wool or lint, will never use anything else. It is so much nicer in every way; ever so much more pleasant for the patient; and one other very great advantage it possesses, you can remember the number of strips inserted, and when you come to remove them you can make sure that none are left behind. This method of plugging the nostril back and front is obviously such a distinct advance on other methods, such as filling up the nose with lint saturated with perchloride of iron, etc., that I need not stop any longer to dilate upon its manifest advantages. The plug thus inserted can be left in the nostril for two or three days if necessary, and when it is time to remove the anterior part a spray of cocaine, applied before each strip is withdrawn, facilitates the removal.

Occasionally, when one nostril is plugged tightly the other side of the septum begins to bleed, and it may be necessary in severe cases to plug the other nostril too.

When plugging of the nostril is carried out on the above-mentioned plan, the dangers connected therewith are reduced to a minimum; but as there have been some instances recorded of suppurative otitis, and even meningeal inflammation, following the use of the posterior plug, it behoves us to be cautious and not undertake the operation lightly or resort to it unnecessarily.—*The Practioner*, August, 1892, p. 104.

41.—THE SURGICAL ASPECT OF THE PARALYSIS OF NEW-BORN CHILDREN.

By Robert W. Lovett, M.D., Out-Patient Surgeon to the City Hospital, Boston, Mass.

The commonest forms of paralysis directly attributable to injury during birth are facial paralysis of the arm.

Of facial paralysis there is very little to be said. I have had no personal experience in the matter, but it is described as being generally transient, and in the great majority of cases, passing off in a week or two after birth. It is produced by direct injury to the nerve by the application of the forceps, although it occurs in occasional cases where instruments have not been used, especially in face presentation. Parrot and Troisier have demonstrated the paralysis to be due to injury of the nerve, most often at its exit from the stylo-mastoid foramen. This may go to the extent of a fatty degeneration, but in general the pathological changes to be noted are slight in the few cases where an autopsy has been made.

Although in general the paralysis disappears in a few days, or at most a few weeks, there are cases on record where facial paralysis has been permanent, as in a case reported by Duchenne.

Paralysis of the arm, which I wish to make the especial subject of my paper, is fortunately not a very common accident. In 5,600 cases of surgical disease in children coming to the surgical out-patient department of the Children's Hospital since 1884, there have only been two cases of obstetrical paralysis of the arm, and this would point to a decided infrequency of the affection, as many kinds of paralysis find their way to this clinic. Last year, for instance, there were some 60 new cases of various sorts of paralysis brought to the department.

I am able to present an analysis of nine cases of this affection, especially with regard to the end results to be expected; and, so far as possible, I have made prominent the practical features of them. Of these nine cases, two occurred in my own experience, one occurred in the practice of Dr. C. W. Townsend (who has kindly allowed me the use of his notes), for one case I am indebted to Dr. J. G. Dearborn, of Charlestown, and the other five are from the records of the nervous out-patient department of the Boston City Hospital, occurring in the services of Drs. Prince and Bullard, to whom I am indebted for permission to use the cases.

The condition is made manifest immediately after birth, by an inability to use one arm; it hangs powerless at the side, with the palm turned backward, and often the fingers are flexed tightly. If the arm is lifted from the side it falls lifeless back into place, and although movement of the fingers is generally present, it is impossible to use the arm to any extent on account of the paralysis of the shoulder muscles.

It is desirable, if possible, to know the cause and the natural history of this condition, especially with regard to the prognosis.

Cases of paralysis of both arms are on record, as in Observation X of the series reported by Nadaud.

This paralysis is not always the result of difficult labour. In most cases, however, it is to be attributed to some abnormality in the birth of the child.

Of my nine cases, I was able to learn of the character of the labour in all but one. One labour was described as a cross-birth, but beyond that no information could be obtained. The second was a footling presentation, with a long, hard labour, and forceps were applied to the after-coming head. The remaining six labours were with the head presenting. All were multiparæ, and in four of the six the labour was described as hard and forceps were used. The two remaining cases are particularly worthy of attention. In one the child was the eighth, and the labour was described by the mother as being unusually easy. The other demonstrates very clearly how paralysis may result from what appears to have been an easy labour.

In certain cases a disability of one arm simulating paralysis is due to a fracture or dislocation of the upper end of the humerus. In the case of a fracture the nerves may be involved in the callus, and impairment in their functions (a true paralysis), may result from their involvement, or the disability may be only a transient one due to the fracture itself.

The disability of the arm noticed at birth is, however, in most cases a paralysis due to an injury of the brachial plexus, which lies at the root of the neck, embedded among the muscles and directly in front of the trapezius muscle. It is therefore liable to severe pressure in the descent of the child. This sets up an irritation which may eventuate in a neuritis, resulting, perhaps, in fatty degeneration of the nerves, and upon the extent of the original injury depends the amount of disability. Theoretically, it seems curious that the accident is not more common if it can be produced by such trifling causes as in the labour described last.

There has been a general consensus of authority as to the cause of the affection, although Jacquemeyer attributes it more often to prolonged pressure of the humerus against the nerves of the plexus in the axilla.

In a case reported by Danyau it was clearly demonstrated at autopsy that the nerves had been locally injured and were surrounded by ecchymoses produced by the blades of the forceps. A long contusion running down the border of the trapezius muscle was seen externally.

It is asserted by some writers that the injury to the plexus is produced by too deep an insertion of the forceps into the pelvis; but the fact that two of these nine cases occurred without the use of forceps at all shows that such a supposition cannot explain by any means all of the cases.

The paralysis is most marked in the deltoid and biceps muscles, the supinator longus, and the supra- and infra-spinatus. Gower states that the paralysis is most often due to an injury of the branch from the sixth cervical nerve to the brachial plexus. It seems difficult to understand how traction upon the head can be severe enough to stretch the nerve roots of the plexus without producing other injuries: and pressure directly upon the nerves of the plexus by some of the bones of the pelvis is a more satisfactory explanation in those cases where it can be assumed.

In short, so far as we can judge, the cause of the paralysis would seem generally to lie in strong traction made oftenest by the forceps, but that in certain cases the paralysis is probably produced by direct pressure upon the plexis, either by the instruments or by the bony prominences of the pelvis.

Once more, it may be said that it is hard to understand how traction upon the head, or even upon the arm itself is sufficient to stretch so seriously the brachial nerves without tearing apart the shoulder-joint or inflicting some other injury. And again it is difficult to comprehend why the affection should be so uncommon if it can be produced by strong traction, in view of the fact that strong and even violent traction is so often necessary during delivery.

The cases that I have analyzed have all followed one course. The paralysis has been complete, and the arm has hung lifeless at the side for weeks and months, with little or no improvement in its condition. Atrophy is not marked at first, but gradually comes on in slight degree, and the shoulder appears wasted and droops a little. In the course of years, a certain amount of motion is restored to the arm; and in the oldest cases among those analysed, there was a fairly useful arm. There is some shortening of the bones and some atrophy of the muscles; but the disability is chiefly to be attributed to the paralysis of the muscles of the shoulder.

The diagnosis rarely presents any difficulty. The paralysis is present at birth, and involves only the arm. It may be simulated *(a)* by fracture or dislocation of the shoulder; *(b)* by a hemiplegia occurring before, during, or after labour; *(c)* by infantile paralysis, which should be mentioned as a possibility in very early life, although the greatest of rareties in the first months. A case, however, stands on record from Duchenne where anterior poliomyelitis occurred on the twelfth day after birth. As a matter of fact the paralysis of the arm received during labour rarely is noted until some days after birth.

In the treatment of this affection, electricity is universally advocated as the best and most available measure at our command; and the faradic current is used in preference to the galvanic. But few parents will persist in a treatment which is likely to stretch over months, with little or no signs of improvement; and practically most of the cases analysed here

have been untreated so far as any continuous application of electricity is concerned. In the lighter cases electricity might be of much practical benefit; in the severer, it would certainly aid in preserving the nutrition of the muscles and hastening the improvement so far as possible.

One measure which seems reasonable has been used in the cases coming under my own observation—namely, a supporting bandage to the arm and shoulder, generally applied in the form of a Velpeau. In any paralysis of the deltoid and shoulder muscles the weight of the arm drags heavily downward and stretches the ligaments and the disabled muscles. In a case of slight paralysis it might be a very important matter to support temporarily the arm and save the muscles from further stretching and irritation. In a severe case, of course, it would do little or no good. Indeed, it is easy to see that, where an injury to the nerves lies at the root of the trouble, measures addressed only to the muscles supplied by those nerves are not likely to produce any radical improvement.

In conclusion, I would call attention once more to some of the more important practical conclusions to be drawn from the analysis of cases. The paralysis most often occurs in very difficult and in instrumental labours, but it is not necessarily limited to these, and may result from labours apparently normal. It is probably due to some injury of the brachial plexus, and is generally associated with strong traction made upon the head. Last, and most highly important of all, is the fact that the affection is not in most cases a transient one, but that the outlook is doubtful at best, and a disabled arm is most likely to result after years of slow and unsatisfactory improvement.—*The Boston Medical and Surgical Journal*, July 7, 1892, p. 8.

42.—ON PRIMARY EPITHELIOMA OF LYMPHATIC GLANDS.

By H. T. Butler, F.R.C.S., Surgeon to St. Bartholomew's Hospital.

[In the course of his first lecture on Cancer of the Scrotum Mr. Butler makes the following interesting and important reference to those remarkable and rare cases in which the groin-glands become the seat of cancerous disease without primary disease of the scrotum or neighbouring parts:]

I have met with the records of three cases of this rare condition, and, by a rare good fortune, they are described by competent observers. The first is recorded by Sir James Paget in the *Medical Times* of 1852 (new series, vol. 414), but much more fully in the first edition of his *Surgical Pathology* (ii., 447), and the description is so excellent that it must be quoted at length.

"I have seen one example of primary epithelial cancer in lymphatic glands which I will relate, both for its own interest and because it illustrated many of the foregoing statements. The patient, who was in St. Bartholomew's Hospital last summer, was a sweep, aged 48. His skin was dusky and dry, and many hair follicles were enlarged by their accumulated contents; but he had no appearance of cancer or wart of any kind on the scrotum or penis, yet his inguinal glands were diseased, just as they commonly are in the later stages of scrotal soot cancer. On the right side over the saphenous opening, a cluster of glands formed a round tuberous mass, more than an inch in diameter. It felt very firm, heavy, ill-defined, and as if deep set. Over its most prominent part the skin was adherent and ulcerated, and a soft dark growth protruded through it. Above this mass were three glands, enlarged but not hardened. On the left side, below the crural arch, one gland was enlarged to a diameter of half an inch

and hard, and four others felt similarly but less diseased. All these were movable under the skin.

"The disease had been observed in progress for fifteen weeks, having begun in the right groin as a hard lump under the skin, like those which were now in the left groin, and which had commenced to enlarge somewhat later. The ulceration in the right groin had existed for a week. I removed all the glands that seemed diseased. The chief mass, from the right side, appeared, on section, lobed, soft greyish, mottled with pink and livid tints. The same changes, but with increased firmness, were seen in the largest gland from the left side, and the material pressed from both these (a turbid, grumous, and not creamy substance) contained abundant epithelial cancer cells. The other glands were not evidently cancerous, but, during the healing of the operation on the right side, a gland, which I had thought it unnecessary to remove, enlarged and became hard; it was destroyed with chloride of zinc, and then the wounds healed soundly."

The other two cases were under the care of Mr. George Lawson, who thus speaks of them in the *Lancet* of 1878, ii., 576:

"Chimney-sweeps' cancer, as a rule, originates in the skin, but to this there are occasional exceptions. In two cases which I have had under my care in the Handel Ward, Middlesex Hospital, the disease started in the glands in the groin, the skin became adherent to the infiltrated glands, and then ulcerated. The ulceration extended, and each patient died from hemorrhage caused by the ulceration involving the main vessel, in the one case the femoral, and in the other the external iliac artery." This statement is confirmed by the more detailed relation of one of the cases, and an account of the healthy condition of the scrotum.

It is quite curious, considering the great importance of these cases, and the light which a study of them may throw on certain difficult questions in the pathology of cancer, how little attention they have attracted. Thiersch alone, of the various authors I have examined, mentions their occurrence, and assumes that the glandular enlargement was secondary to an actual epithelioma of the scrotum, which had not ulcerated, and which lay beneath the surface of the integument—in fact, to an overlooked primary disease. He refers, of course, only to the case described by Paget, for the other cases had not then been published. In some circumstances this explanation might be accepted as reasonable, but, to us here it would appear really impossible. The importance of the first case as an example of primary epithelioma of the glands was fully appreciated by Sir James Paget. The patient was a chimney-sweep, so that a primary affection of the scrotum was suspected and sought for with the greatest care, but there was not even a wart on the external organs of generation to which the suspicion of primary epithelioma might have been attached; and the cases of Mr. Lawson afford the strongest confirmation of the possibility of the occurrence.

Excluding the possibility of such malignant disease of the external generative organs as is apparent to sight and touch, even when directed with the greatest care by the most skillful eyes and hands, it must be admitted that the affection of the glands in these cases may have been secondary to a primary disease in some other part of the body. The lower extremity and the rectum present themselves as possibilities. The lower extremity is, however, really not tenable; primary malignant disease in such a situation could not have been overlooked, and the disease of the glands in both groins is not consistent with the supposition. The rectum is almost as improbable. The groin glands are seldom affected in such

case, and certainly not until the disease is so far advanced that the bowel disease forms the most prominent trouble so far as the patient is concerned.

Again, there is the question of a simultaneous or almost simultaneous affection of glands, such as occurs in some cases of sarcoma, but there is really nothing in these cases in common with cases of general sarcomatosis.

In the absence of an evident primary source from which the lymphatic glands could have been affected, the possibility of primary cancerous affection of the glands must be taken into account. Such cases are not of very unusual occurrence under the terms lymphadenoma (Hodgkin's disease), lymphosarcoma, and primary sarcoma of lymphatic glands. We are familar with such primary malignant affections of the glands of the neck, the mediastinum, and the axilla; therefore, the possibility of their occurrence in the groin must not be overlooked. But the conditions of those and of the disease in question are so different that it is well-nigh impossible to conceive that they have anything in common. Their course is usually slow, they are prone to affect many glands in different regions of the body, they seldom break down and ulcerate, and rarely if ever cause death by opening a large blood-vessel. And above all, they are lymphatic or sarcomatose diseases, while this disease of the groin-glands was carcinomatous.

But now the question naturally presents itself—Why should not these have been cases of primary epithelioma of the lymphatic glands? It is true that we knew little or nothing of such an affection. I have found no instance of it in the *Transactions* of the Pathological Society. Works on pathology and tumour diseases are for the most part silent on it. But that is not a reason why the disease should not exist. Last year, at the Royal Medical and Chirurgical Society, Mr. Walter Spencer, in a most interesting communication, showed how the soot particles may be found in the interior of the cells, and suggested that their presence there might afford a possible explanation of the pathology of the very class of cases we are considering. I examined Mr. Spencer's section with great care, and was convinced of the correctness of his observations. But when I came to consider how they could be applied to these cases of epithelioma of the lymphatic glands I was forced to admit that the reasons against the adoption of this theory are stronger than those in favour of it. I shall presently give reasons for believing that soot, if it is in any way the cause of the occurrence of cancer, acts only as a predisposing cause, merely as a mechanical or chemical irritant. It is quite conceivable that such an irritant should induce the occurrence of malignant disease in internal organs, and in organs of very different structures, provided it can reach them. But it is wholly inconceivable that it should induce in these different organs the occurrence of a variety of malignant disease which does not naturally occur there—of squamous-celled carcinoma, for instance, in the interior of a lymphatic gland. The thing is so inconsistent that I was forced to reject the theory as untenable. Every circumstance concurs to the belief that the affection of the groin-glands in these cases was secondary, not primary.

Here, then, we are brought face to face with a cancerous affection which is not primary, inasmuch as it fulfills none of the essential conditions of primary cancer; which presents all the characters of a secondary affection, but for which no primary source can be discovered. More than this, it presents the characters of an affection which is not only secondary, but is secondary to a particular variety of cancer occurring in a definite

situation in the near neighbourhood. So decidedly, indeed, were the characters of the glandular disease similar to those which are observed in cases of secondary affection of the groin-glands in connection with sweeps' cancer of the scrotum, that the resemblance at once struck Sir James Paget, and a close examination of all the conditions of the case confirmed the first impression.

I scarcely venture to suggest it—and yet I believe it is the case—that we have here to do with a cancerous affection of the glands which is secondary to a primary cancer which has never had any existence. The mere statement appears to imply an absurdity. But the facts of the cases which have been recorded are so clear, and the contingencies which depend on the acceptance of this explanation are so weighty, that I am fain to attempt to make good the theory.

Before doing so, it will be well to draw attention to one or two points in relation to the pathology of cancer. Cancer (the term is employed here in its widest sense, and is applied to every kind of malignant tumour) is sometimes regarded as a mere disorderly reproduction of elementary tissues. But this offers a very incomplete conception of the disease. It is disorderly only in the continual tendency to produce new tissues, and in the many varieties of form which the new elements, especially the cells, present when compared with the natural elements, of the part in which it occurs. On the other hand, it is so orderly in the arrangement and grouping of the elements, that each variety of cancer is as distinguishable as are the various normal tissues. These characters are reproduced in the secondary tumours, often so faithfully that it is difficult to distinguish sections of the primary and secondary growths. And more than this, what may be regarded as accidental characters of the primary growths, such as organisation, degeneration, hemorrhage, may occur with equal frequency and to an equal degree in the secondary growths.

It is evident, then, that the elements of the cancer, or of the part in which the cancer originated, have become endowed with other and more potent properties than a mere tendency to active reproduction—the power, namely, to arrange themselves in certain definite groupings, and the power to reproduce similar groupings of elements in any near or distant organ to which they chance to be conveyed, and in which the conditions are sufficiently favourable to their maintenance and development. So strong are these acquired powers that the transferred elements of the primary disease are not only enabled to reproduce faithfully the groupings of the primary disease, but they are wholly incapable of producing any other than these groupings, with trivial modifications.

With regard to the manner in which the transference of the primary disease to the lymphatic glands is effected, two theories seem reasonable —first, that portions of the primary tumour are conveyed through the lymphatics to the glands; secondly, that some foreign organic element, which has perhaps been instrumental in inducing the occurrence of the primary disease, has travelled through the lymphatics into the tissues of the glands.

Of the possibility of the first method of transference there can be little doubt. What may be described as a coarse conveyance of cancer through the lymphatics may be observed from time to time. In such cases the growth of the disease in the lymphatic glands is practically continuous with the primary disease: but, in the majority of cases, the conveyance through the lymphatics must be assumed. The closest investigation, even by the most accomplished observers, fails to discover even an occasional cancer cell or recognisable part of a cancer cell in the lymphatics between

the primary disease and the secondary affection of the glands. Nevertheless, the absence of ocular demonstration is no real obstacle to the acceptance of the theory. It is only needful to assume that minute portions of the primary disease pass from time to time, or have passed with the lymph, into the glands, and that they are capable of full development and of reproduction, and that they carry with them the new powers which have been acquired by the elements of the primary disease.

At the first sight the second theory seems more attractive than the first, for it renders the comprehension of the primary disease more easy; but there are certain difficulties in accepting it. An organic element, such as the organisms on which various diseases are believed now to depend, enters the body from without under favourable circumstances, excites the tissues of the part in which it settles to the development of the variety of malignant disease to which they are liable, and in doing so itself undergoes such modification that when it is conveyed to other parts of the body, where it is capable of inducing the occurrence of cancer, it is only able to induce the occurrence of the particular variety of cancer which was excited in the part of the body primarily affected. I have in my mind Dr. Hunter's bodies, Gussenbauer's molecules, and the newly-discovered objects in cancer—psorosperms. The difficulty in accepting such a theory is, to my mind, the admission that such an organic element, even endowed with very great powers, should have the power, not merely of exciting the tissue elements to active reproduction, but of forcing the tissue elements of one series to assume the characters and grouping proper to the tumours derived from another and wholly different series, for instance, of forcing the elements of connective tissues to assume the characters and grouping of epithelial tissues or of tumours derived from epithelial tissues.

The same argument applies to the view that the transference is accomplished by the agency of a liquid—a cancer juice wholly devoid of even microscopic solid particles.

Whether we accept the first or the second of these theories is of little consequence, provided it is understood that the particles of the primary cancer possess the powers of development, of reproduction and grouping in the midst of tissues of various kinds and origins; and that the supposed organic element, in its passage through the tissues first affected, has been modified in such a manner as has been suggested.

Now, I would venture to go one step further and to suggest that the tissues of a part like the scrotum may be affected in such a manner, either by long-continued irritation of a particular kind or by the admission to them of an organic element, that cancer ought to have been induced. But, owing to certain causes, among which probably great resistance of the tissues attacked plays an important part, the cancer, so to speak, aborts. In spite of this, it is quite conceivable that the elements of the affected tissue may have acquired powers which they are not able to exert *in loco*, and may exert them as soon as they have been transferred to a more favourable soil. Or that the exciting organic element passing through the tissues where it might have excited cancer, but where the cancer has aborted, has been so modified that, when it reaches the tissues of the neighbouring lymphatic glands, it is capable of inducing there the occurrence of cancer, but only of the particular variety of cancer which would have occurred in the tissues primarily attacked. The cancer of the glands in such case is secondary, inasmuch as its variety and its very occurrence depend on the character and influence of the tissues in which the primary cancer has aborted; it is primarily only in the circumstance that it is the first visible manifestation of cancer in the individual attacked.

If we accept this explanation of the occurrence of cancer in the groin-glands of chimney-sweeps who have never suffered from obvious cancer of the genital organs, we may employ the same theory to explain the occurrence of many curious growths whose existence has hitherto been a puzzle. Some years ago an innominate bone, containing in its interior a cylindrical-celled carcinoma, was exhibited at the Pathological Society, and in 1886 a "cylindrical-celled cancer of the humerus" was exhibited by Mr. Jonathan Hutchinson, jun. In both cases the occurrence of the tumour was explained on the supposition that it was secondary to an undiscovered malignant disease of some part of the body; I would suggest rather that these tumours were secondary to a primary disease, which, for some reason, had aborted; and, in the same way, may be accounted for some of those cancerous affections of the glands of the neck which have all the characters, general and microscopical, of secondary tumours, but for which a close investigation fails to discover any primary source.—*British Medical Journal*, June 25, 1892, p. 1344.

DISEASES OF BONES, JOINTS, MUSCLES, etc.

43.—ON THE TREATMENT OF SIMPLE FRACTURE OF THE SHAFT OF THE FEMUR WITH THE LONG SPLINT.

By N. F. Graham, M.D., Professor of Surgery in Howard University, Washington.

The first requisite for the treatment of fracture of the femur, no difference what appliances may be used, is a firm, smooth mattress, laid on an unyielding foundation, on which the patient should be placed before the fracture is set. Now the splints should be prepared of suitable length, width and strength; the outer long enough to reach from just below the axilla to six or eight inches beyond the sole of the foot, as wide as the thickest part of the normal thigh, notched at the lower extremity, and with two holes bored and bevelled at the upper extremity. The inner splint should be of the same width and strength as the outer, and should extend from the perineum to the same distance beyond the foot as its fellow, without holes above or notches below. Both splints must be carefully padded with long smooth strips of fine absorbent cotton, or a good quality of cotton batting, wide enough to extend a trifle beyond the edges of the splints and shaped to fit the natural inequalities in surface of the limb, the prominences being especially protected. The aim should be to secure a uniform pressure on every part of the length of the limb. The padding can be held in place by strips of muslin long enough to encircle the splint and padding, placed from four to six inches apart, and tied on the outside of the splint.

The perineal band should now be fitted and left loosely in place. A large, soft napkin or handkerchief, carefully folded and—if at hand—covered with oiled silk, answers the purpose well. Next, a strip of strong adhesive plaster, two inches wide, is applied, extending from above the knee, down the leg on one side, around the bottom of the foot, leaving a short loop at the turn, and up the other side of the leg to a point as high as that of beginning. The malleoli should be protected by layers of cotton between them and the plaster. A few short transverse strips of plaster may be applied to give the long strip firmness enough to bear the traction to which it will be subjected.

Then a number of canvas straps with buckles, or, what will answer the purpose just as well, strips of strong muslin a couple of inches wide and long enough to encircle the limb and splints, are laid under the leg and thigh from the ankle to the perineum at intervals of four inches. To complete the arrangement a broad band should be placed under the body, wide enough to extend from the axilla to the hips, and long enough to go around the body and lap three or four inches.

Now, with properly applied extension and counter-extension, the thigh is brought to its normal length, and by manipulation the fragments are made to assume their proper relation to each other, an anæsthetic being used if necessary.

The outer splint should now be placed alongside the limb, and the free extremities of the perineal band carried through the holes at the top of the splint and fastened. Next, by means of a cord or a strong strip of muslin passed through the loop of adhesive plaster, the foot is securely fastened to the bottom of the splint, and it can be so securely fastened and held between the extending and counter-extending forces as to prevent shortening. The inner splint is now put in place and the straps buckled, or the strips, if they be used, securely tied. If this arrangement be effectively carried out there need not be the least movement of the limb. The binder about the body may now be fastened about the body by two rows of safety-pins, one at the exposed and one at the concealed extremity.

There is a safety in this method that no other plan of treatment possesses, and it has the advantage of being easily carried out. If I may judge from the testimony of the patients treated by me by various methods, those treated with the long splint suffered less than those treated by any other appliance. It is found, by observation and a perusal of the statistics of all the larger hospitals in this country and Europe, that about twelve per cent. (the extremes ranging from seven per cent. to eighteen per cent., depending on localities) of all fractures are in the femur. Considering the importance of the bone, it is a matter of no small moment that the management of its fractures should be conducted with effectiveness and simplicity. At the same time the comfort of the patient should not be disregarded.

Of 668 cases of fracture, taken from the records of the Freedmen's Hospital in this city, 84 were of the shaft of the femur, all of which were treated with the long straight splints, with perineal band and foot extension. The results have been all that could be desired. The average shortening, in cases in which shortening was found, did not exceed one half inch, and there were no instances of angular or rotatory deformity. The average time the splints were left on, during the earlier years of the existence of the hospital, was about six weeks. During the past six years they have been replaced by the plaster-of-Paris dressing at the end of four or five weeks, and the treatment by this method is complete in from six to eight weeks, after which time the patient is allowed to move about freely on crutches for a few days longer.

My own personal experience in the treatment of this fracture covers all the methods recommended, but I have finally settled on the long straight splints as furnishing the most available, as well as the most certain, plan for securing satisfactory results. With care, the risk of the extending and counter-extending forces becoming relaxed, so as to allow the muscles to contract and cause shortening, is small, and one that has given me but little concern. I have notes of thirty-seven cases treated by me by this method within the last six years. In not one was the shortening enough to cause a limp, and the contour of the limb was normal in every instance.

In conclusion, let me sum up by saying that this plan of retentive dressings for fracture of the femur is easily applied, the splints are easily made, and the patient is more easily and safely handled than by any other appliance. There is no risk of displacing the fragments if the patient moves up and down, and he may even move sideways to a limited extent —a small liberty that adds greatly to the comfort of the sufferer.

In the case of young children they can be lifted from the bed without risk—an advantage not associated with any other retentive dressing, except the plaster of Paris.

It is my opinion, however, that this latter dressing should never be applied during the early days of a fracture, not only of the femur, but of any of the long bones.—*Medical News*, June 18, 1892, p. 686.

44.—ON POTT'S FRACTURE AT THE ANKLE.

By Lewis A. Stimson, M. D., Surgeon to the New York Hospital.

By Pott's fracture at the ankle I mean that common injury produced usually by a forcible twist of the foot outward, and consisting (typically) of (1) a fracture of the fibula from one to three inches above the tip of the malleolus, (2) a fracture of the internal malleolus or a rupture of the internal lateral ligament, and (3) a diastasis of the lower tibio-fibular articulation with rupture of its ligaments, or possibly with avulsion of the adjoining portion of the tibia.

Of these lesions, the fracture of the fibula is, clinically, the most striking and the most easily recognised, and this fact has a constant and well-marked tendency to fix the attention upon this one of the three lesions to the exclusion or at least to the subordination, of the others—a tendency that is full of danger for the patient for reasons that are apparent on a closer examination. The fracture appears usually to be oblique, often very markedly so (in a specimen of my own the line of fracture is more than two inches long), but the maximum of crepitus and abnormal mobility appears on manipulation to be well above the malleolus, a feature which is ordinarily sufficient at once to distinguish this form of fracture from another of much less importance which is apparently produced by *in*version of the foot, and in which the line of fracture is situated at or near the base of the malleolus.

The lesion that stands second in clinical prominence is the fracture of the internal malleolus or the equivalent rupture of the internal ligament. The common form is rupture of the ligament, the less common one is fracture; and the fracture presents two typical forms. One of them is the equivalent of rupture of the anterior portion of the ligament, and has the same mode of production; in it only a small portion of the malleolus —an antero-inferior fragment—is broken off, the line of fracture being oblique upward and forward. In the other the whole malleolus is broken square off at its base, and the mode of production is quite different, as will be subsequently explained; in my experience it has always coincided with the extreme outward displacements of the foot.

The third lesion is the rupture of the ligaments of the lower tibio-fibular articulation. In a few recorded cases, instead of rupture of the anterior ligament, avulsion of the portion of the tibia to which it is attached has taken place; in only very few of the specimens which I have had an opportunity to examine, either post-mortem or in the course of an operation or of an experiment upon the cadaver, have I found this frac-

ture, and then it has been only an avulsion of a superficial scale of bone; I believe that even such a superficial fracture is rare.

The effect of this rupture or avulsion of the ligament is to loosen the mortise within which the astragalus is held and thus to permit the displacement of this bone (and, of course, of the foot) outward. The displacement thus made possible is at once effected by the continued action of the vulnerant force; and if the weight of the individual is then brought upon the foot, the lack of coincidence between the point of support at the heel and the long axis of the leg leads instantly to further displacement in the same direction, and possibly to important additional injuries. Another result of this loosening of the mortise—one which is of much practical importance but which has received only scanty attention in systematic treatises—is the backward displacement of the astragalus along the lower surface of the tibia. This may be slight—an eighth, a quarter of an inch—or so great that the body of the astragalus lies wholly behind the tibia. It is effected in part by the contraction of the sural triceps and in part by gravity when the limb is supported in the usual horizontal position. I have never seen the extreme form in cases less than twenty-four hours old, and I associate it, not with corresponding severity in the causative violence, but with persistent, unopposed action of the sural muscles—in other words, with absence of treatment or with defective treatment.

If these two displacements, the outward and the backward, remain uncorrected, the resultant disability is great. The former removes the point of support so far to the outer side that an excessive strain is brought, in walking, upon the ligaments on the inner side of the ankle, and the patient is soon compelled to stop. The backward displacement, if slight, limits the range of flexion of the joint; if great, it abolishes it completely.

Except in the more marked cases, and unless specifically sought for, this diastasis of the tibio-fibular joint and the symptoms to which it gives rise can be easily overlooked, and yet it is the essential lesion of the injury—one which vastly outweighs the fracture of the fibula in importance (the latter may even be absent), and one without which the lesions on the inner side of the ankle would probably be impossible. Without correction of this displacement and repair of these torn ligaments, a satisfactory recovery from the injury can not be had. This, then, is the feature which characterizes the injury and dominates the treatment. It is by the recognition of its presence that the diagnosis is made, and by the completeness of its repair that the efficiency of the treatment is measured.

This rupture of the tibio-fibular ligaments and the outward displacement of the foot were recognised by Dupuytren and have formed part of most systematic descriptions since his time, but the current notion of the change in the relations of the parts has always been, and apparently still is, that which is indicated in Percival Pott's original illustration, and it seems not unlikely that this illustration is responsible for it, for it has often been reproduced and is still doing duty. This notion is that the astragalus and the lower fragment of the fibula have been rotated ten or twenty degrees about an antero-posterior axis passing through the tibio-fibular joint, so that the upper end of the lower fragment is pressed inward against the tibia, the apex of the malleolus is directed obliquely outward, and the upper surface of the body of the astragalus is separated from the articular surface of the tibia by an angular space which is widest at the inner side. This conception of the change is erroneous: there is no angular change in the relations of the astragalus and tibia, but the former has simply slipped sideways along the latter; the upper end of the lower fragment of the

fibula has not been displaced inward (indeed, a glance at the skeleton will show that there is no room for such a displacement), but the lower part of that fragment has been pushed outward by the displaced astragalus.

The indications for *treatment* (reduction and retention) have long been well understood; it is only necessary to emphasize the importance of meeting them thoroughly and permanently, and to point out the probability of being misled if one trusts to the eye alone to estimate the completeness of the reduction of the displacement. In the cases of extreme backward displacement, anæsthesia may be necessary to annul muscular opposition to reduction, and the same condition of the muscles occasionally makes it necessary in the slighter cases, either to effect reduction or to maintain it until the dressing shall have been applied. The indication, in the common run of cases, is simply to bring the external malleolus back to its place alongside the tibia, to hold it there until the torn ligaments and the broken bones have reunited, and thus to re-establish the mortise with the astragalus within it. This is accomplished by the aid of the ligaments that unite the malleolus to the astragalus and calcaneum; if the foot is brought back into place, the malleolus must go with it. But it must be remembered that in this re-establishment of the normal position of the foot it is upon its posterior portion alone that our efforts and our attention must be fixed; it is the astragalus that is to be brought into place, and the attitude of the front of the foot is not much more of an indication of the position of the astragalus than the attitude of the forearm is of the position of the head of the humerus. The posterior portion of the foot, the heel, must be pressed forward and inward, and must be held in place by pressure made against the outer side of the calcaneum and cuboid; the first effect of this pressure is to move the calcaneum and the rest of the tarsus inward along the lower surface and front of the astragalus —or, in other words, to invert the sole and adduct the front of the foot— and only after this movement has reached its limit and the ligaments have become tense does the pressure take the desired effect upon the astragalus and malleolus. Consequently, the rule should be to press the foot inward as far as it will go, adding inversion of the sole and adduction of the front of the foot. There is no danger that the movement will be carried too far; the astragalus can not move a hair's breadth inward beyond its proper position; that is prevented by the internal malleolus or by the arrest of the fibula by the tibia, and, however distorted the position may seem, the distortion is wholly in front and below the ankle, and within the limits of a normal range of motion. Let me repeat: This inversion is not a superfluous addition to the treatment; it is the most convenient and trustworthy means of preventing the recurrence of outward displacement.

It is also necessary that the heel should be supported to prevent backward displacement.

These indications are satisfactorily met by moulded splints of plaster of Paris. I prefer them to complete incasement because they permit inspection of the inner side of the ankle and immediate detection of recurrence of the displacement, and I prefer them to single or double lateral wooden splints, because they are less liable to shift or to permit recurrence. They can be made of any loose-meshed material and plaster cream, or, very conveniently, of the common four-inch plaster roller. If made of the latter or of any other gauze, they should have twelve or fifteen thicknesses. The posterior splint should extend from the toes, along the sole, around the heel, and up the calf nearly to the knee; the lateral one should begin just in front of the external malleolus, pass over the dorsum

of the foot to the inner side, under the sole, and upward along the outer side of the leg to the same height. They are moulded and bound to the leg, while wet, with an ordinary roller bandage, which should be removed after the plaster has set, its place being taken by a few turns of a bandage just above the ankle and at the upper end of the splint. It is advantageous to have the splints wide enough to overlap along the side of the leg, and thus give greater security against shifting.

Such a splint may be put on immediately after the accident without fear of strangulation, if the supporting circular bandages are watched and loosened if there should be need. If put on while the limb is swollen, the subsequent shrinking can be met by tightening the circular bands; but it is advisable to apply a new one after a few days.—*The New York Medical Journal*, June 25, 1892, p. 702.

[See also notes on Pott's Fracture in the *Synopsis* of this volume of the *Retrospect*.]

45.—ON UNUNITED FRACTURES IN CHILDREN.

By D'Arcy Power, M.A., F.R.C.S., Surgeon to the Victoria Hospital for Children.

As I do not find that any surgeon has paid especial attention to ununited fractures occurring in children, I have thought it worth while to put a few notes together, which I hope may prove useful as well as interesting to those surgeons who are attached to children's hospitals, or who are otherwise brought into frequent contact with children who have sustained injury.

Ununited fractures are undoubtedly rare in children, but nearly every surgeon who has much to do with the treatment of the surgical diseases of children can probably recall one, or perhaps more cases of non-union which have come under his notice. Some of them have been published in the various medical periodicals of the world, and I have recently been at the trouble of collecting and tabulating some of the more accessible.

In the unrivalled collection of cases of ununited fractures compiled by Dr. Frank Muhlenberg, and published in the first volume of Professor Agnew's *Principles and Practice of Surgery*, no less than 685 cases are recorded and analysed. This table includes pseudarthrosis met with at all periods of life, and amongst them I find 28 cases occurring in children under ten years of age. Sir James Paget records 3 cases which came under his own observation. From other sources I have been able to collect, more or less, full particulars of 40 cases, so that the total number which I have been able to gather together is 71.

This table I have recently had the honour of laying before the Fellows of the Royal Medical and Chirurgical Society of London, but it is too long to reproduce, and I will therefore only state the general conclusions which I deduced from it. Of the 71 cases, 7 occurred in the clavicle, 9 in the humerus, 12 in the femur, 42 in the leg, and only 1 in the forearm —a result which is very surprising when it is considered that statistics show the forearm to be more often broken than any other bone in a child's body. Ununited fractures are a little more commonly met with in girls than in boys; they are equally frequent on the right and left sides of the body. The most unsatisfactory point in connection with ununited fractures in children is the frequency with which all operative measures fail to effect union. Thus, of the entire number of 71 cases, firm bony union was only obtained in 6 children, whilst of the others some remained in their former condition, some received slight benefit from a very prolonged and often hazardous course of treatment, whilst others, as was too often

the case, underwent that "opprobrium of surgery," amputation, in order to be relieved of a limb which was worse than useless.

It is important, therefore, to ascertain the causes which appear likely to lead to this condition, because, although everyone recognises how often broken bones are met with in children, it does not seem to me that they quite realise the ease with which these injuries may be overlooked, without any blame attaching to the practitioner; and, when they are overlooked, how disastrous may be the results of such an error in diagnosis.

The cause of the non-union of fractures in children is always local, and is, I believe, want of rest.

The want of rest may be due to a variety of causes, which may be classified in the following way:

1. *Errors in diagnosis.* In children there are many causes which may lead to difficulty in diagnosticating a fracture. In the first place, infants may be born with one or more of their bones broken. Mr. Thomas Smith related an interesting example of such a case to the Fellows of the Royal Medical and Chirurgical Society of London. It occurred in the fifth child of perfectly healthy parents, who could never assign a precise cause for the condition. The mother was accustomed to have very tedious labours, but in this instance there had been unusually violent action of the uterus, followed by prompt expulsion of the child early in the course of labour. The baby was brought to Mr. Smith within a day or two of its birth, and on examination all the long bones were found to be broken, so that the least movement of its body caused a grating sensation. As it could not be dressed it was swathed in Gamgee's dressing, and placed in a sort of tray moulded to its shape. All the fractures united within six months except that of the right femur. This is, of course, an extreme case of congenital fracture, occurring either during or immediately after labour. Similar instances, however, where only a single bone is injured are of no infrequent occurrence. As may easily be imagined, if such a child is entrusted to a nurse of the ordinary type of midwife met with in the country, such an injury is almost certain to be overlooked, with the disastrous results to which I shall presently call attention.

There is another class of congenital fractures which is very liable to be overlooked even when an examination is made by a highly skilled person. In this class of cases the fracture has occurred subperiosteally, or may be of the ordinary green-stick type. Admirable examples of both these classes are preserved in the museum of the medical school attached to the Westminster Hospital. In these cases dissection alone would reveal the injury, and there is no doubt that under ordinary circumstances they would readily be repaired. If, however, the child were to be neglected, or roughly handled, the periosteum might readily be torn through, or the green-stick variety might be rendered complete, when in both cases an ordinary fracture will occur. In such a child, too, the violence necessary to produce this result might be so slight that the fracture might be truly called spontaneous.

In fat children, again, a green-stick fracture is especially liable to be overlooked by the mother and the doctor, and it is probably not recognised until the production of callous a week or ten days after the injury renders it obvious. It appears from an examination of cases that such cases of unrecognised fractures being allowed to go about without restraint give rise to a certain proportion of the ununited fractures met with in children.

2. *Carelessness* on the part of the child's attendant appears to be a factor in the causation of ununited fracture. This carelessness is usually manifested by delay in calling for skilled advice; this may be from simple

callousness, as occasionally seen amongst the class of patients who frequent the out-patient rooms of hospitals; more often, however, simple inattention is the cause of the delay. The child is sent out under the care of a small nurse, who either drops it, or allows it to damage itself in some other way, and is afterward too frightened to tell the mother on her return home. The mother notices that the child is peevish, but attributes its irritability to general rather than to local causes. If she be unusually observant, she brings the child to the doctor in a week or ten days' time, saying that it has "a lump," and this on examination proves to be callous, marking the seat of the fracture. If this happens when the fracture repairs, it must, of course, be equally frequent in cases of non-union, and, indeed, in looking through the histories of such cases I have been struck with the constant repetition of the phrase, "The fracture remained for a time untreated," or, which is nearly as common, "It united in bad position, and was subsequently refractured and put up straight, when it failed to unite," in both cases showing that proper care was not taken from the beginning. Carelessness on the part of the parent is often the result of mere ignorance of the simplest laws of domestic surgery, and it is therefore well to give a little simple advice in every case of fracture which is brought under one's notice. In an ideal state every broken bone would be treated under the immediate and constant supervision of a surgeon, but in a large town this is impossible, nor can every child with a broken forearm, or clavicle, or tibia be taken into a hospital. It is well, therefore, to warn the mother after the injured limb has been securely put up in a plaster case or in splints that she must herself look after the child, and see that the apparatus does not loosen, and, in the case of the leg, that the child is not placed in a high-chair and allowed to dangle its legs. In such a position the two fragments are very soon able to work upon each other with the hinge movement, which Hamilton has shown to be so common a cause of non-union after fracture.

In some cases, too, I am afraid that the medical practitioner cannot be entirely acquitted of all blame. He should remember that it is his duty not only to fix the broken bone, but also to see that the two ends remain fixed. In a fat child and in a restless child it is often extremely difficult to maintain the two fragments in motionless apposition. He should therefore see the child more frequently than is usually necessary in a fracture occurring in an adult, and especially during the second week. A fat child who is confined to bed, or whose movements are restrained, wastes very rapidly, so that bandages or plaster-of-Paris cases, which were at first quite sufficient to render the fragments immovable, very soon require readjustment. This readjustment, however, must be done with discretion, since their is nothing so fatal to the satisfactory repair of a fracture as constant and needless meddling with the retentive apparatus.

In some cases, too, it would seem as if the surgeon went to the opposite extreme, and simply left the fracture to take care of itself; this mistake is most commonly made in connection with a broken collar-bone, and is, perhaps, one of the reasons why so many instances of non-union are recorded in this bone. Such an error in treatment is also made when a green-stick fracture of the humerus, of the radius, or of the ulna is treated by the simple application of a sling. The child is taken home, allowed to crawl about, and the green-stick fracture is very probably converted into an ordinary fracture before the surgeon again sees it.

Professor Agnew points out that in children the line of fracture is more often transverse than in adults. This point, if true, is of great interest, for it is obvious that it is much more difficult to keep the two

ends of a transverse fracture in apposition, than one in which the fracture was oblique. In a transverse fracture the ends would either meet or they would not meet, whilst in an oblique one some part of the ends would be sure to overlap.

The treatment of fractures in children, then, resolves itself into the following common-sense rules: Diagnosticate the fracture as early as possible, and in every case keep the fragments in perfect apposition. After the fragments have been secured, see that the apposition is maintained by exercising careful supervision, and, when necessary, by the readjustment of the retention apparatus. As in cases of adults, so in children, the most successful treatment of fractures depends upon attention to details. In cases where non-union has occurred the prognosis in regard to subsequent union is very bad. In such cases the ends may be resected, and the fracture treated by securing perfect immobility of the bone for a long period. If, however, there has been much wasting of either end, it will, I think, be found that resection is useless. In the bones of the upper extremity the resulting fibrous union, judiciously aided by a light artificial support, will occasionally enable the patient to pass his life in tolerable comfort. Under similar circumstances in the lower extremity, however, it will often happen that amputation alone affords the patient relief from his miserable condition.—*The American Journal of the Medical Sciences*, May, 1891, p. 531.

46.—SOME PRACTICAL POINTS IN THE TREATMENT OF CLUB-FOOT.

By A. B. Judson, M.D., New York.

In the treatment of club-foot it is well to bear in mind that there is a vast difference in such a case between a child walking and a child recumbent. When the baby is in arms the case is still uncomplicated by the weight of the body thrown on the deformed foot. And this is the first practical point in the treatment of this affection which I would emphasize, and would repeat as follows: While the child is in arms, and the case is yet free from the complications and difficulties caused by the falling of the weight of the body on the deformed foot, the case should receive the most assiduous and persistent attention. These twelve months, more or less, are the most important year in the history of the case, because in this interval the foot is to be so changed that when the child becomes active on his feet the application of a slight walking-brace, exerting only a moderate degree of force, will convert the weight of the body from a deforming to a correcting force. During these months of recumbency, with the weight of the body out of the way, with all the tissues comparatively soft and formative, and the foot more than doubling in size with the growth of the child, there is every reason to expect to succeed in what we undertake, provided time enough be given to the case and faithful attention to the details.

The agent used to affect this partial reduction before the child learns to stand is a simple retentive splint, which acts as a lever, making pressure at A, in Figs. 2 and 3, on the outer side of the leg and foot, on the convexity of the deformity, and counter-pressure at two points, one on the inner side of the leg, below the knee, at B, and the other on the inner border of the foot at C. The fact that this simple instrument is a lever is the second practical point which I would emphasize, because if we know that we are making use of a lever, with its well-defined three points of pressure or rather one point of pressure, A, and two of counter-pressure,

B and C, we can get more out of the apparatus than if we view it in a more indefinite way, as an application for improving the shape of the foot and leg. I use a little brace made of sheet brass, doing the work with a few simple tools. Two curved discs, B and C, in Figs. 4, 5, and 6, of thin brass, are riveted to the ends of a narrower and thicker piece, D, to form the part of the brace which makes the two points of counter-pressure. A third disk, or shield, A, in Figs. 4, 5, and 6, is applied to the convexity of the deformity with a strap of adhesive plaster, E, in Fig. 3, surrounding

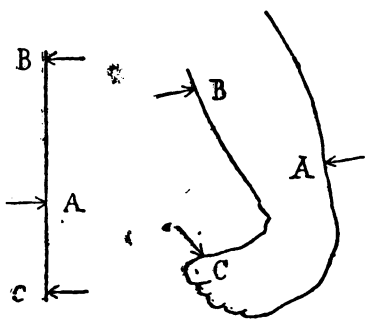

Fig. 1.

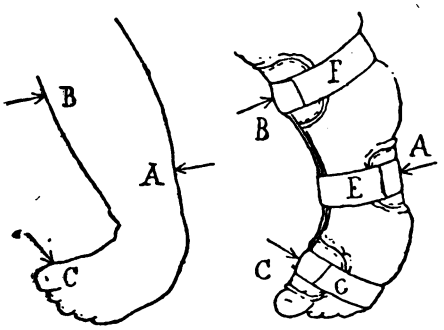

Fig. 2. Fig. 3.

the leg, and including the shield and the piece which connects the two disks. All the disks are to be lined with pieces of blanketing easily renewed. These braces are so cheap and easily knocked together that it is nothing to apply new and larger ones, using heavier materials as the child grows.

The brace is applied with three narrow straps of adhesive plaster. The upper and lower straps, F and G, in Fig. 3, are simply to keep the apparatus in place, while, by drawing the middle strap, E, tightly over the shield, and straightening the brace from time to time, the deformity is

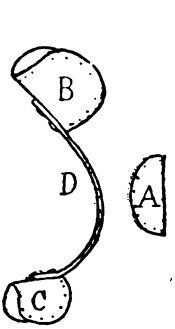

Fig. 4.

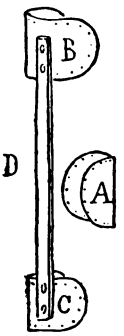

Fig. 5.

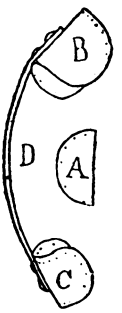

Fig. 6.

gradually and slowly reduced. At each re-application the brace is to be made a little straighter than the foot and leg at that stage. This may readily be done by the hands, and then the middle strap is to be tightened over the shield till the shape of the limb agrees with that of the brace. After a few days the brace is to be made still more straight, and again re-applied and made tight until another point of improvement is gained. The brace is applied very crooked at the beginning of treatment, as in Fig. 4, and is straightened from time to time, and a larger brace applied, as the

deformity is reduced and the patient grows. It may be removed ever week or so, and an interval of a few days allowed for freedom from th brace, when the mother is directed to manipulate the foot, using as muc force as she will in the direction of symmetry.

By this simple and prosy treatment, carried out symmetrically an without haste, or violence, or pain, the foot, unless it is a frightful excep tion, may with certainty be changed from varus to valgus. Fig. 4 show approximately the shape of the brace at the beginning of treatment, Fig 5 when the varus is reduced, and Fig. 6 when valgus has taken the plac of varus. The foot in this latter stage may not hold itself valgus when left to itself, but with almost no force, and with one finger, it may b pushed into valgus, and in this condition it must be when the child begin to walk, and then an entirely new phase of treatment begins.

The brace useful to this point is now useless, because it cannot hold the foot against the overpowering weight of the child when he stands, and yet, with no brace at all, every step made with the outer border of th foot on the floor is a force perpetuating and increasing the deformity. Here it has been noticed that there is an important boundary line between deformity and symmetry. If the foot is held in some way on the right side of this line each step forces it in the direction of valgus, and the in creasing weight of the child is a powerful force, acting in the right direc tion so long as the foot is held, though never so little, looking toward symmetry. It may be said that the child stamps himself straight. If, on the other hand, the foot is held, or allowed to go, on the wrong side of this line, though never so little, each footstep is a blow driving the foot more and more into the varus position. And this is the third point which I would especially emphasize. From the time the child begins to stand the weight of the body should be made to act against, instead of in favour of, the deformity. This may be done by mechanically holding the foot in a proper position to receive the weight pressing down from above. If this is not done, standing and walking will increase the deformity.

The brace needed from this time on must be made of steel by an instrument-maker. Like the one which is used in the beginning of treat ment, one of its functions is to act as a lever against the deformity, but the leverage now used is not so much to overcome the deformity directly, which cannot be undertaken with success against the weight of the body. The force of the lever is now applied to hold the foot on the right side of the boundary line above mentioned, so that the weight of the body straightens the foot in a direct and forcible manner.

The brace used at this stage consists of the ordinary foot-piece and upright, with a transverse band at the upper part. The band is placed behind in order to give attachment to a piece of webbing which crosses the front of the leg. The upright is on the inner side of the leg. The upright is to be bent from time to time as the foot improves. This and other parts of the brace should be made of mild steel, to facilitate altera tions in shape and the shifting of buckles and straps as required, all of which may be done by the use of a few simple tools. The foot-piece riveted to the upright, has the usual riser on the inner side of the foot, to which is riveted an ear made of sheet brass to keep the great toe down and a spur projecting upward from the back part of the outer border of the tread to give attachment to one end of a piece of webbing which makes the heel-cup, the other end of the webbing being riveted to the lower part of the upright. The foot-piece is lined with adhesive plaster to prevent rust, and with a piece of truss leather fastened with two rivets In practice the details demand as much attention as the principles of

treatment. The brace is worn over the stocking and under the shoe, while the moderate pressure necessary is made by buckles and pieces of webbing.

Besides keeping the foot in proper position to receive the weight of the body, I may mention two or three other advantages to be derived from the use of this brace. For instance, a narrow strap of adhesive plaster wound around the foot and buckled to the riser of the foot-piece rotates the sole of the foot outward and combats the varus. Again, as the deformity is reduced and the upright is bent, the tread of the foot-piece becomes an inclined plane, higher on the outer border and lower on the inner border of the foot, the effect of which is to combat the varus by rotating the sole of the foot outward. Furthermore, the addition of a strap making pressure backward at the upper part of the leg transfers to this point some of the pressure which would otherwise be received, when the patient walks, on the anterior part of the sole of the foot, thus facilitating the correction of the varus, and making it possible at a later stage of treatment to stretch the tendo Achillis by gradually reducing the obtuse angle which is made at first between the upright and the foot-piece.

As the child outgrows this walking brace a larger one is to be made, and when three or four years old the foot will, without the help of the brace, strike the ground so fairly that, for two or three years, all treatment may be suspended. The patient is to be observed from time to time, however, and as the foot grows in its original inclination to varus it will, after the lapse of two or three years more, have to be kept in proper position under the rapidly increasing weight of the body by a brace similar to the last for another period of two or three years. When the foot is full grown it will be normal and shapely in appearance when dressed, and practically perfect in its ability to perform all the functions of a foot congenitally normal. While the foot is under treatment in this way the improvement is continuous, and the natural and obvious result of the means used, considerations which bespeak and retain the confidence of the parents of a child thus affected, a practical point, in closing, not to be overlooked in cases which occupy so much time in treatment.—*The New York Medical Record*, July 11, 1892, p. 650.

47.—ON GANGLION.

By CHARLES S. EVANS, B.S., M.D., Surgeon to the German Protestant Hospital, Cincinnati.

The term ganglion, according to the best authorities of the present day, ought to be limited to those small tumours, rarely larger than an almond, which occur in the neighbourhood of joints and tendons, most commonly on the hand and foot, and which possess a peculiar, thick, strained-honey-like, or colloid contents.

This fluid is to be regarded as being as characteristic of ganglion as are the contents of a sebaceous or dermoid cyst for them. It is the *sine qua non* of ganglion, and in this article the term will be used with that limitation.

Ganglia, as is well known, occur most frequently on the hands and feet, about the knees or elbows. They are much the most common on the hand, and here the places of predilection are the radial sides, dorsal and palmar, of the wrist. They also occur on the fingers, and even in the palm of the hand. On the foot they are almost invariably on the dorsal surface in close proximity to the tendon of the extensor proprius hallucis. That ganglia do occur in the region of the knee, usually associated with the hamstring tendons, cannot be denied, but they are rare, probably rarer than is usually supposed. Still rarer are those about the elbow.

As has been said, only such tumours as possess the peculiar colloid material will be considered as ganglia. This then enables us to exclude (1) all affections of the bursæ, for they never possess this fluid; their cystic tumours are simple hygromata. (2) Herniæ of the joint synovia as described in the thorough investigations of Wenzel Gruber. (3) Hygroma poliferum (Virchow) and all other forms of tuberculosis of the tendon-sheaths. (4) Hydrops of the tendon-sheaths. (5) Other tumours arising from or in the neighbourhood of the joints or tendon-sheaths; such as lipoma, fibroma, fibro-enchrondroma, echinococcus, cysts and gummata.

Ganglia, with the limitation of the term already made, occur in order of frequency as given above, and possess certain well-marked characteristics. They rarely exceed in size that of an English walnut, and are generally much smaller. They are far from uncommon, and occur more frequently in the female than in the male sex.

The function of the hand is generally but little affected: at times, however, and especially in cases where the ganglion has been repeatedly ruptured, there is a sense of weakness, which most commonly affects the whole hand, and also some pain on motion. At other times, especially in hysterical patients, the functional disturbance may be great.

The tumour is covered by a healthy skin to which no attachment takes place except in those cases, which might almost be said not to occur, where ulceration and suppuration of the ganglion occur. Movement of the fingers causes, at times, some motion on the part of the tumour.

The size varies, but the variation is within comparatively narrow limits; the smallest, occurring usually on the fingers, are about the size of a pea, the largest on the hand or wrist, rarely the size of a small egg, while the most commonly met with size is that of an almond. This is, of course, the apparent size as made out by palpitation, for the real, as shown in dissecting out the tumour, always exceeds the apparent size. The form is generally spheroidal, now and then irregular like a tomato; this depends upon constrictions of the tumour by bands of fibrous tissue, or upon the formation of pockets, or of daughter cysts. The consistency, like that of a sebaceous cyst, varies from exquisitely fluctuating to as hard as bone, hence the German appellation "Ueberbein," this difference being due not to any variation in the consistency of the contents but to the tension of the same. The contents are invariably the already mentioned transparent colloid material, at times stained red from hemorrhage, due to attempts at bursting, but usually of a straw-yellow colour. On dissecting out such a cyst, a true ganglion, it is found to consist of an outer fibrinous and an inner endothelial layer, this latter said often to be incomplete. The cyst wall, in general, is quite tough.

Origin.—As to the origin of ganglia, one must believe that such typical tumours have a certain and constant mode of development; and yet the theories relating to this very point are far from few in number. We will consider first the older and most commonly accepted view, that they are hernial pouchings of the tendon-sheaths or of the synovial membrane of the joints.

This theory must necessarily presuppose an abnormal filling of the tendon-sheath (an occurrence with which the clinical history rarely, if ever, corresponds), and we ought, therefore, to find the ganglia developing most commonly at that part of the sheath which under pressure is most disposed to sacculation. Now, injection experiments prove that the end of the sheath-sac is the first to become sacculated (Volkmann), but, unfortunately, ganglia connected with this part of the sheath are rare. Even those ganglia which are supposed by the patients to have occurred

suddenly, would, of necessity, if due to increased internal pressure, be filled with the same character of fluid as that which is supposed to fill the sheath; for, according to the theory, the ganglia is but a hernia filled with the same fluid as filled the sac from which the hernia took place, the change in the consistency of the fluid being supposed to depend upon a thickening of the same from absorption of some of its water. Now, these same ganglia which are supposed to have appeared suddenly, are rarely situated at the end of the sheath-sac, can usually be burst, and if not burst their contents cannot be pressed back into the sheath. They are usually supposed to be due to a blow or strain, and the history of a dropsy of the tendon-sheath is rarely or never met with in connection with them. That the fluid filling them has the same physical character as that of a common true ganglion we have every reason to believe, for they have never been shown to contain anything else. Furthermore, though dropsy of the tendon-sheaths is known, many cases are really tubercular (Koenig). It is not known that in the absorption of the dropsical fluid, a substance similar to that found in ganglia is produced. Another point against the hernial origin of these tumours is the fact that they can be burst. The opening into the sack must be very small, and the fluid have undergone the thickening process very rapidly, which is not the experience of Gruber (*loc. cit.*) in what might be called "hernial bursæ."

That the ganglia have a certain relation to the joint-capsule and to the tendon-sheaths, seems to have been questioned but by few; that they are almost invariably intimately attached to both the joint-capsule and one, usually more, tendon-sheaths, is an anatomical fact; and, further, that a true inter-communication between the two cavities is quite, if not exceedingly, rare, careful dissections go to show.

The ganglia at the wrist are, probably with few exceptions, attached to several tendon-sheaths, but quite frequently can, by careful dissection, be separated from the same without opening either cavity. They further, as Falkson remarks, dip down to be attached to the joint-capsule, which one would hardly expect them to do, did they spring from a tendon-sheath, for tumours tend in their growth toward the skin-surface, and not toward the deeper tissues; whereas, did they arise from the joint-capsule, a secondary attachment to several tendon-sheaths might be expected.

There still remain for consideration three theories, and it is especially to the first two that later writers are turning more and more.

The first two may well be considered together. They are: (1) Ganglia develop from the follicules synovipaires of Gosselin, as retention-cysts; or (2) to the sub-synovial bodies described by Henle, Gosselin, and Teichmann. To these sub-synovial bodies of Henle, Hoeftman looks for the germ of his "synovial dermoid." It must, however, be remembered that both of these theories are hypotheses only; there has as yet been no proof that ganglia occur from either source; but, on the other hand, they are based upon certain anatomical facts, and we know that other structures, somewhat similar in character, do produce cysts, and we also know that, as a broad and general rule, cysts are developed from glands.

Now, the synovial follicles of Gosselin and the sub-synovial bodies of Henle have been found both in the joint-capsules and in the tendon-sheaths. Therefore, if the hypothesis is correct that ganglia owe their origin to certain changes in these structures, then there is no reason to suppose that they may not develop from either joint-capsule or tendon-sheath; that they might develop more frequently from one than from the other goes without saying.

As to the other view, the third of the remaining theories, that the

ganglia are neoplasmata (Teichmann and Knorr), colloid cysts, which have absolutely nothing in common with the tendon-sheaths or joint-capsules, one can only say that it can be easily refuted if we admit that there is, even though it be rarely, a communication between the tendon-sheath or joint-cavity and that of the ganglion. If this communication is absolutely denied, and the literature would hardly warrant it, then the refutation of the theory would be impossible with our present knowledge of the developmental origin of these tumours. Ganglion certainly do not, as a rule, communicate with the neighbouring synovial cavities; the reported cases of careful dissection prove this statement, and certain other considerations make it probable that a communication, if such exists, must be very rare; thus, long-continued pressure will not empty the cysts, and suddenly applied force causes them, when their walls are not too tough, to burst. According to the laws of physics for the diffusion of fluids, a communication, be it ever so small, would seem well-nigh impossible, and still have the fluids, one thick and the other thin, retain these characteristics; besides, the specific contents of a ganglion have never been found in a tendon-sheath. Another argument in favour of no communication is that of the older methods of treatment which cured by causing suppuration of the sac; they cured, and that, too, without, in the vast majority of the cases, causing suppurative inflammation of the joints or tendon-sheaths, and the opening must, indeed, be small which will not let the staphylococci pass.

Treatment.—The most universally and frequently used, if not, indeed, the oldest method of treatment of true ganglion is the mechanical bursting of the same, a procedure which is rendered possible by the resisting character of the structure, bone, on which they lie; by the tension of the contained fluid, and, also, by the sac being practically always a closed one. The way in which this simple operation is performed is so familiar as scarcely to justify description; suffice it to say, sudden pressure with the thumb, or a sharp and well-directed blow with the back of a book, especially the latter means, seem to have been the most favourite methods. The after-treatment consists of a pad so held in place by bandage or by adhesive plaster as to make pressure on the collapsed cyst, with now and then, for some days following, massage of the region to empty the sac of what fluid may have re-collected.

The ganglia so treated always return after the lapse of some time, weeks or months; the pain is not inconsiderable, and the shock to a child or young girl, in whom they are more common than in men, may be great. Another, and no small disadvantage, is that at times, even though the blow or sudden pressure be well directed, it is impossible to burst the tumour.

Subcutaneous puncture or decission has, ever since the introduction of this procedure, been a favourite method of dealing with these cysts. It must, however, along with the forcible rupture, be considered as, and only as a palliative means. The ganglia so treated are sure to return; but as a palliative method it is certainly worthy of consideration.

Extirpation as a method for the cure of these tumours has of late years grown much in favour; not simply because we now know that the great majority of the cysts have no direct communication with the joint or tendon-sheath cavities, but because, by virtue of the protection given by the so-called antiseptic or aseptic method of operating, it is a matter of no consequence, as to the result, whether such a communication existed or not.

Without very much doubt, extirpation offers absolute immunity from

recurrence, though Koenig says that even then recurrence may take place. But here it would be very difficult to discriminate between a recurrence and the formation of another cyst.

Clinically, extirpation can only be advised, conscientiously, for those cases which stubbornly recur after treatment by other methods, or those which have some especial symptom, pain, tenderness, etc., which seriously interferes with the following of the vocation of the person so affected. It is also to be recommended for those cases which lie in close connection with the radial artery.—*The American Journal of the Medical Sciences*, June, 1892, p. 643.

48.—ON TUBERCULOSIS OF THE TENDON-SHEATHS.

By CHARLES S. EVANS, B.S., M.D., Surgeon to the German Protestant Hospital, Cincinnati.

Tuberculosis of the tendon-sheaths may be primary or secondary; the latter form is much the more common, being usually an extension of the tubercular process from a neighbouring bone or joint to the affected sheath or sheaths, but as its symptoms and its gravity are masked and thrown into the shade by the bone or joint affection, it will be to the primary form of tubercular teno-vaginitis that especial attention will be directed.

Acute primary tuberculosis of the tendon-sheaths has never been described, yet the possibility of such a thing, say as part of an acute miliary tuberculosis, cannot be denied.

The chronic tuberculosis of the tendon-sheaths may, since the tendon-sheath is but a closed sac with parietal and visceral layers, be either diffuse or circumscribed. Of the diffuse form two varieties have been recognised, either of which may become purulent; they are the fungous and the hygroma forms. The circumscribed affection appears always to occur in the granuloma form. It is, however, liable to break down and infect the whole sheath.

Chronic diffuse fungoid tuberculosis of the tendon-sheaths.—The beginning is extremely chronic, and usually no cause can be ascribed, except, perhaps, an injury. It localisation is most commonly upon the hand or foot, and in these places an isolated tendon-sheath is more frequently affected than the larger compound ones which envelop such aggregations of tendons as those of the flexors—a point of difference between this and the hygroma form. A slight swelling occurs along the tendon, and since this in the diffuse variety involves the whole extent of the tendon-sheath, this swelling slowly increases, so that after the lapse of some time, years, during which interval little or no inconvenience has been occasioned, the tumour protrudes slightly above the level of the skin.

The swelling, as Berger says, affecting the finger-sheaths of the flexor tendons, appears as a worm or sausage-like tumour, which can be easily palpated, is well defined, and reaches from the middle of the palm up to the finger-tip, the finger-tip or berry remaining normal. That is, the distribution of the tumour is exactly that of the entire finger-sheath of the flexor tendon. The skin over the tumour is normal. The tumour is plastic, at times fluctuating. Very little or no pain or tenderness is complained of.

As contents of the sheath we find, not what is often expected, a fluid, but a greyish-red, sarcoma-like fungus which surrounds the tendon. The entire sheath is usually completely filled, as if both the parietal and visceral layers had been affected and the growth from them had occluded the sheath cavity. The parietal layer may, however, be alone affected; in this case there is found, at times, a central cavity filled with slimy fluid in which rice bodies may or may not be present.

The *hygroma* form of the chronic diffuse tubercular teno-vaginitis is that variety which has been, at times, called "compound ganglion"; ganglion crepitans Acrelii; ganglion of Dupuytren; hygroma proliferum. It is, though not a common affection, perhaps the most frequent form of primary tuberculosis of the tendon-sheaths.

As to etiology, we must here, and in the fungous variety, regard the local infection with the germ of tuberculosis as the primary cause. What the predisposing causes are it is difficult to say. Probably, in a general way, they are the same as those which predispose to other forms of tuberculosis. English writers, in this as in many other affections, have sought to find a causal relation in rheumatism and gout. As to time of life, though not limited to any age, the affection is certainly more frequent in early adolescence than in either childhood or old age.

As to localisation, the region of the wrist is by far the most commonly affected part, and here, again, the sheaths of the flexor tendons suffer more frequently than those of the extensors. The exact anatomical situation is not as yet quite settled—if, indeed, it is not variable. This much however, is certain: the sheaths of the flexors of the thumb and little finger always communicate with the sheaths of the flexor tendons which lie in the palm of the hand, while the finger portions of the sheaths of the flexors of the other fingers do not so communicate, and hence their affections may be limited, while those of the thumb and index finger almost of necessity involve the palm of the hand.

Gosselin and Michon assert that there are always several synovial sacs which pass under the volar carpal ligament; an ulnar sac enclosing the flexor tendons for the fourth and fifth fingers, and a radial sac for the tendon of the long flexor of the thumb, while the flexor tendons for the index and middle fingers lie between the two sacs, but possess no proper synovial envelope. The hygroma affects most frequently the ulnar sac, hence suppuration would cause stiffness of the fourth and fifth fingers. The skin over the tumour is normal and movable, except when suppurative changes have set in.

The size varies greatly. The form, however, is almost constant, as the tumour possesses the marked peculiarity of being bilocular or compound. The explanation of this is a purely anatomical one: the fluid poured out into the sheath-sac distends the same, and the greatest distension must necessarily be where there is the least resistance, that is, above and below the annular ligament of the wrist. Thus these tumours are made up of two communicating sacs, one above, the other below the wrist, the one on the forearm, the other in the palm of the hand, when the tumour occupies its most common situation on the volar surface of the wrist region. Most usually the fluid can be pressed out of one sac into the other, causing the latter to increase in size and to become more tense.

Very frequently during this act or during simple palpation of the exquisitely fluctuating tumour, a peculiar, soft crepitation may be felt, (hence the appellation crepitans), due in all probability to the presence of certain bodies known as corpora oryzoidea or rice bodies.

The contents of the tumour are, as the name hygroma would indicate, fluid—a clear, transparent fluid, very thin and of a specific gravity but little above that of water, thus contrasting markedly with the contents of true ganglia—and in this fluid float a greater or less number of the corpora oryzoidea. The quantity of these rice bodies varies from very many to very few—indeed they may fail entirely, and yet the affection be a *tubercular* and not a simple dropsy of the tendon-sheath. The latter

affection, simple dropsy of the tendon-sheaths, is becoming more and more rare the more frequently the cases are operated upon.

One point must be insisted upon: between the hygroma and the fungous forms come a variety of intermediate affections in which the relative quantity of fluid decreases as the quantity of rice bodies of both kinds, floating and attached, increases.

The pathological anatomy of this variety is, *cæteris paribus*, the same as the fungous, except that, added to the tubercular disease of the sac-walls, we have a greater or less amount of fluid present. The rice bodies may be regarded as tuberculous portions of the sac-wall rubbed off by the action of the tendon. During the course of the affection, which is quite chronic, there develops a weakness of the flexors, an impairment of the function of the hand, an inability to flex the distal phalanges, and, at times, pain up the arm from pressure on the nerves.

Suppuration of the sac, with the resulting contractures, if nothing worse, is a not uncommon termination for untreated cases or for those on which palliative means have been tried.

Circumscribed chronic teno-vaginitis.—Under this heading we have but one sub-variety to consider—the tuberose or granuloma form—teno-vaginitis tuberculosa, chronica, circumscripta, tuberosa. It is probably the only form in which the disease occurs.

The point of especial predilection is at the ends of the sheath-sac, which, in part, may account for the granuloma form that the growth ordinarily assumes, for the tumours are usually sharply defined, semi-fluctuating, more or less distinctly half-round, and approximately the size of half a walnut.

Berger says that these tumours are encapsulated, and offers as an explanation for the limitation of the affection to a portion of the sheath a probable agglutination of the parietal and visceral layers, which, supposably, goes hand in hand with the growth of the tumour.

The granuloma, or if one wishes, "tubercular" form of tuberculosis of the serous membranes, is not at all unknown as affecting both the meninges and the peritoneum. If a case of circumscribed teno-vaginitis be left to itself, the tubercle is prone to eventually break down and discharge, usually in one of two directions, either through the skin, when a fistula is formed and the tendon eventually destroyed, or into the sheath-sac, when a mixed infection, tubercular and purulent, of the whole, until then unaffected, tendon-sheath takes place.

Diagnosis.—The hygroma form has certain well-marked characteristics which generally enable a diagnosis to be made with ease. Its chronic course, localisation, bilocular, or hour-glass form, the soft crepitation and distinct fluctuation, and finally, on puncture, the escape of the rice-bodies, which renders the diagnosis absolute.

The fungous variety in both its circumscribed and diffuse forms, and especially the former, offers much more difficulty.

In the diffuse form the elongated, sausage-like, semi-fluctuating tumour confined to the anatomical limits of the affected tendon-sheath are the characteristics on which diagnosis must be based.

In the circumscribed form we have more especially to exclude other tumours of the tendon-sheaths, such as gummata, lipomata, fibromata, etc., and often an incision alone can decide.

Between tubercular teno-vaginitis and true ganglion there ought not to be much, if any, difficulty in making the differential diagnosis, except when the ganglion occupies an unusual position; in this case puncture would settle the question.

Treatment.—The *hygroma form* (hygroma proliferum) was, and still is by many, treated by the application of irritants and mercurials to the overlying skin. Since the affection is now known to be tubercular in character we can readily understand the impotency of these methods.

The natural tendency of tubercular affections of the tendon-sheaths seems to be, slowly but surely, from bad to worse.

The usual course of a neglected case of hygroma proliferum tuberculosum is, that after a time, generally years, the skin at some point over the swelling grows thin, glossy, and slightly reddened, and finally ulcerates, discharging the contents, which are usually more or less purulent and contain rice bodies. This may result in a cure, but generally starts up such an active inflammation that an operation of some kind or other is necessitated.

Puncture, and later aspiration, were naturally the first operative procedures; made with antiseptic precautions they are to-day without danger, and even in the pre-antiseptic period their danger, like that of other subcutaneous operations, was much less than that attending free incision.

To this form of treatment was usually added the injection of an irritant, commonly iodine tincture, very recently the emulsion of iodoform in glycerine.

Free incision, with or without division of the annular ligament, Syme's operation, followed by drainage, was a much used method, and undoubtedly gave good results. Garré, in speaking of the final results of this method, says the majority of the cases suffer a recurrence, either in the form of hygroma or fungus; another part of the cases die of other tubercular affections, while a third part remain well for from six to ten years. These latter cases he compares to tuberculosis of the peritoneum, where, as is known, simple incision may cause the cure.

Quite a favourite method of operating was to make two free incisions, one above, the other below the annular ligament, by this means thorough drainage being practicable; of late years this method has been enlarged by the addition of curetting the sac-walls, that portion of the sac immediately beneath the annular ligament being scraped by means of a drainage-tube passed beneath the ligament, the scraping being effected by the holes in the rubber tube as it is drawn back and forth.

The remaining operation, that of a truly radical removal of all the tuberculous material, though by no means new, for it is referred to by Jules Cloquet, is one which has been rendered justifiable by the antiseptic and aseptic methods of operating.

The operation is very simple in its description, but tedious and difficult to perform. The sac is laid open, split from end to end, then with the forceps and curved scissors the affected membrane is dissected off. Iodoform, drainage, and bandage. The results are good. As to the *treatment of the fungous variety*, both diffuse and circumscribed, what has been said of the methods of treating the hygroma form holds true—that is, with certain limitations, for owing to the nature of the tumour, puncture, aspiration, and simple incision are here not applicable. So, after the use of topical applications, the next step is to the removal of the growth, hence probably, the "noli me tangere" reputation these tumours have enjoyed.

Of operations for the removal of the fungus but two are used, the curetting and the excision. The formal excision can but appeal to every surgeon as being much more likely to remove all, every trace, of the tuberculous material.—*The American Journal of the Medical Sciences*, uly, 1892, p. 39.

49.—ON SOME AFFECTIONS OF THE TENDON-SHEATHS AND BURSÆ.

By Royal Whitman, M.D., Assistant Surgeon to the Hospital for Ruptured and Crippled, New York.

Primary affections of the tendon-sheaths may be divided into acute and chronic, the most common variety being the dry, crepitating form, from over-use or injury, most often seen about the extensors of the thumb, although in many of these cases, as Larger has shown, the disease is of the ante-brachial bursa, and not in the sheaths of the tendons themselves. Less frequent is a subacute inflammation with slight swelling and local pain about the affected tendon. An acute inflammation with great effusion has been described by Brunon, but there are few supporting cases.

A more chronic or plastic inflammation, caused by repeated injury, or after rheumatic affections, or from peripheral irritation or suppuration, which causes adhesions between the tendons and their sheaths with resulting functional disability was first described in detail by Gosselin. The treatment of these acute and subacute inflammations of tendon-sheaths is, as is well known, absolute functional rest, local compression, massage, and stimulation.

Chronic disease of tendon-sheaths, characterised by slow enlargement without adequate cause, increasing in size with progressive functional weakness and deformity, most often affecting the palmar sheaths, is now considered identical with fungous disease of the sheaths, and tuberculous in character, for which there is but one treatment, early and complete incision.

It is unnecessary to describe affections of bursæ as distinct from those of the tendon-sheaths, except that many of them being superficial, are more liable to injury, with acute inflammation and suppuration. The treatment is similar—rest and compression in the early stage, excision in chronic disease, since, tuberculosis or not, it is at any time liable to become so. Volkmann has shown that the fibrinous deposit in these chronic affections is a most favourable nidus for the deposition and growth of the bacillus. The diseased bursa is not essential to the functional use of the tendon, but a source of weakness, at any time liable to acute inflammation.

Enlarged bursæ in connection with tendons are most often found in the popliteal space, and, as Foucher has demonstrated, the bursa of the semi-membranosus muscle is usually affected.

Another point of interest in this connection is the local pain and tenderness about the insertion of the tendo Achillis caused by overwork or the pressure of tight shoes.

Raynal has described the arrangement of the tendon, enclosed with connective tissue between two layers of fascia, and considers the affection a peri-tendonous inflammation, to be treated in the manner already indicated. After rheumatic inflammation of the feet, pain in this locality is often very persistent, and when combined with thickening at the insertion of the tendon, indicates an implication of the bursa, an affection which is extremely chronic in character.

We now come to a more important application of the subject, the relation of the affections of tendon-sheaths and bursæ to diseases and injuries of the joints. I have already indicated the importance of removal of a diseased bursa, which, by its liability to acute inflammation, is a source of danger, of the tendon-sheaths affected by tuberculous disease, which by extension may set up disease of a similar character in the contiguous joint,

and have outlined the treatment of the acute and sub-acute inflammations, because the same principles apply to the treatment of secondary affections, the result of sprains and fractures.

The relation of tendon-sheaths to joints explains an important difference in the symptoms of persistent disability in the two joints most often injured, the ankle and knee. In the former, the indications for treatment are almost always outside the joint: pain, local tenderness, and limitation of motion. In the knee, the important symptoms are inside the joint: a slight synovitis, a thickening on either side of the ligamentum patellæ, with weakness and insecurity. Again, it is not always the deformity of a badly treated fracture of the wrist that causes the subsequent weakness, for we see cases of extreme deformity with no functional disability but the pain, stiffness, and limitation of motion of the wrist and fingers are the important symptoms. This, we may assume, is the permanent effect of injury on the tissue surrounding the joint, exaggerated in the aged or rheumatic subject.

At the wrist and ankle-joints, with tendons of great functional activity running directly over and in grooves of the bone, surrounded by synovial sheaths, the effect of the violence which breaks the bone must cause tearing of the sheaths, effusion of blood, and subsequent inflammation of a plastic character. As in fracture of bone the amount of provisional callus thrown out is in inverse proportion to the perfect apposition and retention of the fragments, so the amount of plastic material effused in bruised and torn tendon-sheath must correspond. Yet it is the common practice in the treatment of Colles's fracture, to allow early functional use of these tendons, with the purpose of thus preventing the limitation of motion which so often follows. If we consider the proper treatment of primary affections of bursæ, complete functional rest and local compression, followed by early local massage and stimulation to aid in the absorption of effused products, it will indicate the proper treatment for these secondary affections; not early functional use, but prolonged functional rest, with early local massage and stimulation.

In old sprains about the ankle, or after fracture, we often find persistent œdema, caused, I believe, partly by a chronic inflammation of the tissues outside the joint and partly by impaired circulation from loss of functional use. I have called attention to the fact that the too early use of an injured ankle or foot causes a voluntary aversion to avoid activity, which finally results in persistent abduction, or limitation of the important movement of abduction. My attention is constantly called to these chronic sprains of the ankle, and to the entire neglect of a proper examination, which would at once show the true condition and indicate the proper remedy. The treatment usually followed in these neglected cases has been to alternate for months blistering and plaster bandages. Now, a plaster bandage applied to a joint which after an old injury is held in improper position, or when its important movements are limited by adhesions and muscular contraction, is useless and improper: but if, under ether, the adhesions are first broken up and the contracted muscles overstretched, by forcing the foot into a position of extreme abduction or equino-varus, then the plaster bandage, which rests and protects the joint, is a most useful appliance. If this preliminary treatment is followed up by massage, support, and muscular exercise, these patients, disabled for months and years, may often be quickly and completely relieved.

The same principle may be applied at the wrist-joint, whenever we find an important movement restrained by muscular or fibrous contraction.' It is very important that these adhesions should be forcibly broken

up, and the over-correction carried to the extreme limit at one operation ; gradual stretching seems only to cause pain and to aggravate the previous condition.

The principle of treatment of all these disabilities of joint is the recovery of the normal range of motion, or, if that is impossible, to place the joint in the most favourable position for the performance of its function. While in the wrist-joint deformity after fracture may often be disregarded, in the ankle it is of the utmost importance that the weight of the body should be transmitted in its normal relation to the foot, so that in deformities following Pott's fracture with functional disability, an osteotomy should always be recommended. In tuberculous disease at the ankle, when restriction of motion is to be expected, the greatest care should be observed to hold the foot in the line of the leg, and at an absolute right angle with it.—*New York Medical Record*, April 2, 1892, p. 376.

30.—ON THE OPERATIVE TREATMENT OF TUBERCULOUS BONE AND JOINT DISEASE.

By W. Watson Cheyne, F.R.C.S., Surgeon to King's College Hospital.

In considering the various operative measures, by means of which the tuberculous tissue is more or less completely removed, I shall confine my remarks to cases of bone and joint disease ; the same principles are easily applied to tuberculous disease elsewhere ; and first as to the question of expectant *versus* operative treatment.

One point which exercises a good deal of influence on the minds of surgeons is the view which they take as to the curability of the disease by expectant means. Speaking generally, I do not think that we ought to take the very gloomy view which is held by some, to whom the diagnosis of tuberculosis at once suggests a necessity for radical operative interference. The prognosis does not depend so much on the general view as to the curability of the disease as on the local condition of the individual case, and its tractability or intractability to treatment.

Another point which is not without influence is the question whether and how far the presence of a local deposit is a source of danger to the body generally, and to what extent operative interference will prevent that danger. It is of course clear that the presence of an active tuberculous deposit must be a source of danger to the body generally, and that its removal will take away a source of infection. But in the case of joint disease it does not by any means follow that the removal of that disease will save the patient from fresh tuberculous deposit. For it must be remembered that it is only very rarely that the joint trouble is the primary tuberculous lesion ; most usually it is secondary to tuberculosis elsewhere, more especially in the bronchial glands. The question must also be looked at from another point of view, namely, may not the operation itself lead to dissemination of the disease? This does not, of course, apply to amputation above the seat of the disease, but it does to other operative procedures, and there certainly does seem some ground for believing that partial operations can lead to dissemination. As regards acute tuberculosis, it seems now to be the experience of several surgeons that it occurs most frequently in cases that have been operated on. Thus König states that, of eighteen cases of tuberculosis, sixteen occurred after operation, and in the statistics I have put together we had a record of seven cases after operation, two at least being, I think, directly caused by it. Wartmann, in a large number of cases, found that after excision 10 per cent. died of

acute general tuberculosis. Of course it must be remembered that up to quite recently excision was only a very partial operation as regards removal of the disease, and statistics based on excisions as formerly performed are no answer to the proposition that removal of the disease will diminish the risk of general infection. In my own recent cases, where the operations were much more thoroughly carried out, I have had no case of acute tuberculosis after complete removals, such as arthrectomy or excision, while I have had two after partial operations. It seems to me to stand to reason that complete removal of the disease by cutting beyond it, not by scraping or gouging, cannot cause any real risk of dissemination of the disease; but, on the other hand, it can only rid the patient of one source of infection, leaving him still exposed to the occurrence of dissemination from the original source. Hence there is not the same call for operative measures as if the joint trouble were the only tuberculous one.

In the case of phthisis also, while some cases may perhaps be averted by early and radical operations, others may be precipitated by partial operation. Thus Middeldorpf found that after 12½ years 16 per cent. of those amputated (whether through or above the seat of the disease is not stated), 14 per cent. of those excised, and 30 per cent. of those where caseous deposits were scraped out, had died of tuberculosis. I do not think that the hope of preventing the extension of the disease need influence us to a large extent in deciding on this question, but in a case where the decision is doubtful this danger may be allowed to turn the scale in favour of operation. On the other hand, in deciding what operation should be done, where the patient is highly predisposed the danger of partial operations must be borne in mind.

The most important points as regards the local condition are the extent of the disease, the signs as to recovery or otherwise, and the conclusion arrived at as to the possibility of recovery by expectant means. In the first place we can at once exclude from expectant treatment all cases in which chronic abscess has formed. As regards the other cases, joint disease frequently begins at one part and spreads to the rest of the joint, and hence we may have either localised or diffuse disease. If localised, operation is certainly indicated. The remaining cases of diffuse joint disease without chronic suppuration are of various kinds, such as primary synovial thickening without affection of cartilages or bone; primary synovial disease with destruction of cartilages and caries, synovial thickening secondary to an osseous deposit with or without caries, and, lastly, those conditions with serious deformity. Of these a cure is least likely to be obtained where an osseous deposit is present, and in cases where the situation of the deposit is known, and where it is easily accessible, it is often advisable to operate, at any rate if the disease is progressing. The best cases for expectant treatment are those of pure synovial disease without destruction of cartilage, especially where the thickening is not very marked and is pretty firm, and in children expectant treatment should be employed in the first instance in all cases of diffuse synovial disease, and also for a time at any rate where caries of the bone is present, and it should be persevered in so long as the disease does not progress or other circumstances do not arise requiring operation. The remedying of deformities may also require operation.

To sum up, operative treatment is desirable in the following cases: Where chronic suppuration has recurred; at an early stage where the disease is localised to one part of the synovial membrane or bone; in many cases at a later stage where there is a deposit in the bone along with general synovial thickening; in cases of diffuse synovial thickening

where expectant treatment has failed to arrest the progress of the disease; in cases where a better functional result can be obtained by operation; in cases in adults where deformities are present which can only be remedied by operation; in many cases where there are septic sinuses; in certain cases where phthisis is present, or where the general condition is such as to require removal of the disease; in adults more frequently than in children; in the poor more often than in the rich.

Expectant treatment should be employed, in the first instance, in cases of diffuse synovial disease without suppuration, provided that there are no reasons requiring immediate operative interference, and it should be persevered in for a considerable time; also at first in cases in children where osseous deposits are present in parts where they cannot be reached without excision; and in some cases where septic sinuses are present. Much also depends on the joint which is the seat of disease; for example, in the case of the hip-joint, expectant treatment would be much longer persevered in than in a more superficial and easily accessible part.—*British Medical Journal*, June 25, 1892, p. 1356.

51.—ON THE TREATMENT OF UNCOMPLICATED POTT'S DISEASE.

By E. Muirhead Little, F.R.C.S., Surgeon to the National Orthopædic Hospital.

The treatment of Pott's disease in its active phases, like that of other inflammatory bone or joint mischief, should be mainly directed towards securing complete physiological rest for the injured part, and in most cases all that is needed is to second the efforts of the patient, both voluntary and instinctive, which are directed to the same end. In a disease which tends so often to end in spontaneous recovery—we have had six deaths from all causes in 133 cases admitted as in-patients—radical operative measures on a part so deeply seated as the anterior half (the vertebral bodies) of the spinal column can seldom be justifiable; and although, since Israel's operation in 1882, Treves and others have operated on the seat of the bone lesion in a good many cases, the results are not such as to make the operation preferable to expectant treatment in most cases. In practice it is only in the lumbar region that the bodies of the vertebræ are at all freely accessible; and in the dorsal region, which is attacked in so large a proportion of cases, it is only by resection of ribs that the operation is feasible. It is also extremely difficult to remove the diseased parts thoroughly and safely, and without this an operation must be looked on as a failure. Rest—*i.e.*, arrest of motion of the diseased part—is sought after in various ways, each of which has its advantages, by recumbency, by extension, and fixation. Complete recumbency in the supine or prone position is advisable, for a time at any rate, in the first stage of disease in most cases, while in the severe cases, where there is marked constitutional disturbance, it is a *sine quâ non*. Its advantages are that it is simple, requires no apparatus and no special skill to carry it out, while it removes the weight of the parts above from the affected part of the spine to a more complete extent than any portative apparatus can do. Its drawbacks are that it prevents the patient taking exercise, that it is in young children difficult sometimes to maintain, and that the confinement to bed that it involves may be prejudical to their health and may retard or prevent recovery. In most cases in the early stage patients are better without exercise, and by the use of the bed-frame children can be easily prevented from sitting up. The bed-frame consists essentially of two blunt hooks of $\frac{3}{8}$ in. iron rod jointed at the shank ends to a flat iron bar, the length of the distance

between the patient's axillæ. The upper ends of the arms rest in these hooks, to the extremity of each of which a padded strap is fixed, which passes over the shoulders and buckles to the shank of the hook. The flat iron bar rests on the bed, below the nape of the neck, and the whole is attached to the head of the bed by simple means. Though principally meant to be used as a means of counter-extension when weights are used it is useful in simple continued recumbency to restrain young patients without interfering with the use of the arms. Extension may be made by weights attached to the feet, the bed-frame being used for counter-extension, or the weight of the body, when the foot of the bedstead is raised up, may itself supply the counter-extending force. Instead of thus hanging, as it were, the body by the feet, which has obvious disadvantages, we may hang it by the head and upper extremities, and this can be most conveniently done by using the suspension couch. This allows constant extension to be practised while the patient is in the sitting or reclining position, a method of treatment introduced by my colleague, Mr. F. I. Fisher, in 1877. This method has the great advantage that the patient when in the sitting position can see what goes on around in the daytime, while at night he can be lowered almost to a horizontal position. The exact regulation of the amount of extension is easily made by means of the rack-and-pinion movement. Another means of applying extension, and in children a most convenient and efficient one, is the box known by the name of Dr. Phelps, of New York. This consists essentially of a Y-shaped trough of wood, suitably padded. The body of the child occupies the trunk of the Y, the lower limbs the two branches. The sides of the box are cut away just below the shoulders of the patient to allow his arms full play, and the bottom is also cut away below the buttocks to facilitate the use of the bed-pan. By means of occipital and chin straps regulated by buckles counter-extension can be made, the body weight acting as an extending force when the head end of the box is raised up, or by means of the anklets and cords extension can be made by pulling on the feet. The box is very light and easily carried about, and a child can even be taken to school in it and given as much fresh air as climate and situation allow. Experiments on the cadaver, both normal and affected with spinal caries, show that no practicable amount of force will effect immediate separation of the surfaces of the affected bones. I cannot but believe, however, that continuous and unintermitted extension with only a few pounds weight, and still more so when a large part of the weight of the trunk is employed, must in time, by tiring out the muscles, succeed in reducing or nullifying the pressure between the diseased elements of the spinal column. Clinically extension is most useful and its results encouraging. Fixation of the spine is sometimes attempted in the active stage by the application of gypsum jackets or by some other portable appliance. In most cases fixation or attempted fixation is ineffective unless the mischief be situated towards one end of the column.

In the latter stages of Pott's disease potative appliances have their true and best uses. These consist of gypsum, poroplastic felt, leather or wooden, etc., jackets or instruments made of steel and leather. These have as their object to support the spine and prevent further bending of the affected portion, and it is claimed for some of them that not only may the deformity be reduced by their employment but even in some cases totally removed. It has never been my good fortune to see this result. The gypsum jacket has the great advantage of low cost and simplicity, needing the help of no instrument-maker in its application and being made of common and easily obtainable materials. On the other hand, it is heavy and in its simplest

form not removable and consequently dirty and disagreeable. It may, it is true, be made to open and lace down the front, but it is even then not adjustable to any great extent, and if much modification, owing to changing conditions of the spine, etc., is wanted a new jacket must be made. In consequence of objections the gypsum jacket is very rarely ordered in this hospital, where the poroplastic felt jacket may be said to have quite taken its place. This material has the advantages of lightness, great plasticity when softened by steam heat, sufficient rigidity at the body temperature and consequent adaptability to changing conditions, and the jacket is easily removable. It should be applied while the patient is suspended. A properly designed and constructed steel support is perhaps the best possible appliance for convalescent or consolidated Pott's disease, but it has the disadvantages common to all elaborate instruments that it needs special skill and experience on the instrument-maker's part and also on the surgeon's to secure a good result. Jackets and steel supports, unless they extend to the head and thus relieve the spine below of some of the weight of that organ, are of little or no effect as a means of longitudinal extension, and in children, even with the head-piece or jury-mast, the pelvis is so little developed that it is difficult or impossible to get a proper basis or point of support for counter-extension. These appliances must therefore be chiefly useful as a means of extending the spine in the sense of diminishing the abnormal curve or angle, in the same way that a splint is sometimes used on the outer convex side of the leg to straighten a curved tibia. Gypsum and poroplastic jackets can, however, do little more than support the trunk, while a steel support may be made to press on the projecting angle, and by means of a pelvic band and shoulder-straps and a laced chest-piece counter-pressure at the end of the lever can be obtained and further deformity be more surely prevented, or the existing angle be perhaps in some cases diminished.

In cervical and upper dorsal disease an extension of the apparatus to the head is imperatively needed, and for this purpose the occipital support with the chin and forehead straps is better than the overhead jury-mast, in that it more thoroughly immobilises and extends the cervical spine by using the occipital piece as a point of support for the head. It is also less unsightly and far less in the way. In high cervical disease one of the forms of collar which transfers the weight of the head to the shoulders may be used late in the disease, while in the acute stages recumbency, with sandbags to support the neck and present movement, is a classic and effective treatment, and the higher the disease the more complete should the rest be.

In the dorsal region (lower two thirds) Phelp's box or recumbency, with extension by bed frame and weights, is the best treatment during the active stages of the malady. When consolidation begins a poroplastic jacket or well-fitting steel support is advisable. In the loin the disease as a rule results in less deformity than elsewhere, because an obliteration or even reversal of the lumbar curve is much less obvious in its effects on the appearance and attitude of the body than the alterations of form in the neck or chest, and the alterations of the normal loin curve are not often great, no doubt because (as Bradford and Lovett point out) the bodies here are very large and are not often completely or even extensively eaten away by the disease. In this region simple recumbency gives good results, while it is obvious that, owing to the nearness of the trouble to one end of the lever, it is difficult to exert antero-posterior extention by supports. Owing, however, to the length of the unaffected parts of the spine above, of which we can take hold by a jacket or instrument, mechanical support is more efficient here than in the dorsal region. A poroplastic jacket may

be made by careful moulding and firm lacing to fit to the ribs at the sides and back so closely as to offer considerable support to the upper part of the trunk, some of the weight which is thus transmitted to the hips direct. All jackets and instruments should be removed at night or at other times when the patient is recumbent, because they are not then needed, and also to allow the chest walls full play and counteract, as far as possible, the necessarily constringent effects of the jacket during the time it is worn. The "life" of the jacket is also prolonged by thus saving unnecessary wear and tear.

After consolidation is complete little or no chance occurs in the gibbosity formed by the ankylosed vertebræ, or remains of vertebræ, but gradual changes in the "compensatory" curves which occur in the sound parts of the column above and below the projection go on for some time, unless prevented by a well-fitting and firmly applied support. These compensatory curves are the result of the erect position, in which without them the centre of gravity of the body and especially of head and upper extremities would be placed too far forward for stability; the gibbosity is therefore thrown backwards and the vertical through the centre of gravity made to fall within the base by the curves above and especially below (lordosis), but in some cases of dorsal disease, instead of compensatory curves the lines of the angle are continued as it were above and below, and the whole trunk is thrown backwards by movement in the loins and at the hips, so as to attain equilibrium and much to exaggerate the apparent deformity; a proper support should prevent this.—*The Lancet*, July 23, 1892, p. 184.

52.—STATISTICS OF THIRTY-SEVEN CASES OF TUBERCULOUS DISEASE OF THE HIP-JOINT, OF WHICH THIRTY-SIX WERE TREATED BY EXCISION.

By Bilton Pollard, M.D., F.R.C.S., Surgeon to the North-Eastern Hospital for Children, and C. F. Marshall, M.D., Ch.B., Late House Surgeon to the North-Eastern Hospital for Children.

General statistics of all cases. Age at onset of disease.—In one case the age at onset was between one and two years; between two and three years of age there were seven cases; between three and four years four cases; between four and five years three cases; between five and six years three cases; between six and seven years four cases; between seven and eight years five cases; between eight and nine years three cases; between nine and ten years two cases; in five cases the date was unknown.

Side affected.—The right hip was affected in nineteen cases, the left in sixteen cases, and in two cases the side affected was not recorded.

Cause assigned for exciting onset of disease.—In ten of the thirty-seven cases the disease was assigned to a fall or blow on the hip; in one case the disease appeared whilst a double Thomas's splint was being worn on account of disease of the other hip.

Duration of disease before operation.—This was from three to six months in five cases; between six and twelve months in eight cases; between one and two years in fourteen cases; between two and three years in two cases; between three and four years in one case; between four and five years in one case; and between five and six years in one case. In the majority of cases, therefore, the duration of disease before operation was between six months and two years; in five cases the duration was unknown.

Situation of abscess.—In twenty-nine cases the abscess was situated anteriorly to the great trochanter; in fifteen of these it was altogether in front; in fourteen it was partly anterior and partly to the outer side of the hip; in three cases the abscess was behind the great trochanter; in one case the situation is not recorded. Two cases had also an iliac abscess, which was found to communicate with the joint through the psoas bursa. Four cases had discharging sinuses before the operation; three of these were situated anteriorly and one posteriorly. The sinus leading from the superficial abscess to the joint was usually found just above the neck of the femur. The abscess had apparently burst from the joint at the posterior part of the capsule, and had subsequently passed forwards, owing to the resistance being least in that direction. In one case the sinus passed directly backwards to the joint through the Y-ligament.

Extent of disease at time of operation.—In the large majority of cases —viz., thirty-five—the head of the femur and the acetabulum were denuded of cartilage, and the bone carious to a greater or less extent at the time of operation. In five cases the trochanter was also diseased; in one case the acetabulum only was affected; in one case the head of the femur was removed as a sequestrum.

Nature of operation.—In the large majority of cases the anterior operation was performed, posterior excision only being done in four cases. Of the thirty-three anterior operations two were of the nature of an arthrectomy—viz.: (1) the case in which the acetabulum only was diseased; and (2) the case in which the head of the femur was removed as a sequestrum. In five cases an operation was performed previously to excision; in three of these the operation consisted in simply opening and draining the abscess; in the other two cases a partial arthrectomy was attempted.

Period of primary healing.—Five cases died before the wounds healed. Of the remaining thirty-two cases, the wounds in twelve healed by primary union in three or four weeks, and in six more healed by primary union except at the tube track, which granulated in two or three weeks more without suppuration. This makes a total of eighteen cases, or nearly 50 per cent. of all cases in which the wound practically healed by primary union. In the other fourteen cases the period of primary healing was from three to fifteen months after excision.

Recurrence of disease.—In twenty-six of the thirty-two cases recurrence of disease took place; no recurrence took place in six cases up to the time when last seen (it must be mentioned that one of the six died of diphtheria in four weeks and a half after excision). In other words, about 81 per cent. recurred, and about 19 per cent. did not recur. In the twenty-six cases which recurred there were further bone disease in twelve cases, or 37.5 per cent. of the total number of cases (thirty-two).

Secondary operations.—These were required in the twenty-six cases which recurred, but in fourteen of them, in which no recurrence of bone disease took place, the operations were of a simple nature as a rule, and caused but little further pain or trouble to the child. However, in all cases the previous excision of the joint facilitated the secondary operations, for the situation and extent of the former disease were known, or, in other words, the geography of the joint had been learned beforehand. Recurrent disease quickly showed itself at the excision scar, and abscesses, instead of burrowing about and giving rise to sinuses in several situations, came to the surface along the track of the operation wound. This is a point to which we attach importance. A single sinus which leads directly to the joint readily admits of thorough treatment, whilst, if there are many and long sinuses passing amongst important structures, it is extremely dif-

ficult and often impossible to disinfect them. Consequently, when excision is performed late in the course of the disease and as a last resource, the wound quickly gets infected from the septic sinuses, and prolonged and often fatal suppuration takes place.

Influence of the operation on the general health.—Excluding, of course, the cases which died, all the patients were considerably improved in their general health after the operation, and were as a rule quickly relieved from the pain from which they had previously suffered. In only one case of the thirty-seven did general infection (tuberculous meningitis) ensue after the operation. One patient developed phthisis soon after his hip was excised, but when last seen, some nine months after he had left off his splint, no signs of phthisis could be detected, and, though still thin, the boy had decidedly improved in general health. In no case did any sign of amyloid disease appear; and, as may be seen from the detailed reports of the cases, amputation was required in none of them, although in several there was extensive pelvic disease.

The fatal cases.—The mortality directly due to the operation has been greater than it ought to be. Four, or 10.8 per cent., of the cases died soon after they had been operated upon. In two of the cases death was due to shock; with greater care these deaths might not have occurred. The death of one child was most probably due to too hot water being used for irrigation. The water was very hot, but it was not too hot to be borne by the operator's finger, which was kept in the wound all the time the water was flowing. The pulse, which had previously been fairly good, failed at once, and, notwithstanding the most persevering efforts to counteract it, intense collapse supervened, and the child died in three hours. This patient was the first on whom we used boiled-water flushing. In another case the operation was too prolonged, owing to an iliac abscess being dealt with at the same time. The child did not rally from the shock of the operation, and died in sixteen hours after it. In another case, of which the full notes are unfortunately lost, the death is entered as due to iodoform poisoning. In the absence of the notes our recollection of this case is imperfect, but if the entry upon which we rely is correct, we feel that the cause of death was one which should have been avoided. The fourth patient died from collapse on the eight day after the operation. He was also suffering from spinal caries, and was in a weak and very unhealthy condition before the operation. Four other patients are dead. In two cases death resulted from affections in no way connected with disease of the hip—viz., severe and long-standing heart disease in one and diphtheria in the other. One patient died of tuberculous meningitis eleven weeks after the hip was excised. The wound had not healed; it had not been drained in the first instance, and a tube had to be inserted later on owing to distension of the wound with inflammatory exudation. The fourth patient died three years and a half after the excision, the hip being soundly healed at that time. We are informed by the child's mother that death was attributed to abscess in the brain.

Statistics of the completed cases. Period of healing.—Primary union (including cases in which the tube track healed by granulation shortly after primary union of the rest of the wound) occurred in eleven out of the seventeen cases. Of these, four remained permanently healed, and had no secondary operations, and four others remained healed for more than a year after excision before recurrence occurred. In addition to these we may add two cases which also healed by primary union, and remained healed for two years and one year and nine months respectively before recurrence, thus making a total of ten cases which healed by primary

union, and remained sound for a year or more. The date of first healing in the other cases was from three to fifteen months. The period of final healing of course varies much according to the date of recurrence.

Recurrence of disease.—In a total of twenty cases (including the seventeen completed cases and three others which remained healed for more than a year after primary healing) recurrence of disease occurred in sixteen; in nine of these further bone disease was found; in the others the bones were not further affected. In five cases there was only one secondary operation; in five cases there were two, in three cases three, in two cases four, and in one case five secondary operations. Those cases which had most secondary operations performed were as a rule the cases in which further bone disease occurred.

Real shortening.—In the seventeen completed cases the actual shortening was between 1 and 2 in. in nine cases, 2 in. in five cases, 2¼ in. in one case, 3 in. in one case, and 3½ in. in one case. The average shortening is 1.85 in. In the two cases which have 3 in. shortening part of the trochanter was removed.

Apparent shortening.—This was, as a rule, less than the actual shortening, the difference being due to slight abduction of the limb, or to some compensatory curve of the spine. The average apparent shortening is 1.3 in.

Condition of joint.—In two cases there was immobility of the joint, in four cases there was scarcely any mobility, in the remaining eleven cases there was more or less free mobility.—*The Lancet*, July 30, 1892, p. 255, and August 6, 1892, p. 302.

53.—ON THE RELATIVE VALUE OF ARTHRECTOMY AND EXCISION IN THE TREATMENT OF TUBERCULOUS JOINT.

By W. Watson Cheyne, F.R.C.S., Surgeon to King's College Hospital.

The first point is as to the relative danger. The risk of these operations is, on the whole, decidedly greater than that of amputation, the great danger being shock; there is also the further question as to possible dissemination of the disease. As regards shock, the operations I have described are prolonged operations, and there is always a good deal of collapse afterwards, but in none of my arthrectomies has this collapse assumed a dangerous form. In two cases of excision, however, the patients have died of shock. One was a case of extensive disease of the knee-joint in a weakly man, aged twenty-five, where I strongly urged amputation, but the patient insisted on excision. As I expected, the disease, especially in the tibia, was most extensive, and I had to chip away considerable portions of the bone; the patient died of shock the same evening. The other was a case of hip-joint disease in a child where there was also extensive pelvic disease and abscess in the pelvis. The child never rallied. As regards the risk of dissemination of the disease, I do not think there ought to be any risk of that, provided the operation is done by cutting; if there is much scraping or gouging, no doubt there is a chance of tuberculous material being forced into the veins, but as I have already said, scraping should not be employed. We may say, therefore, that the two operations are pretty much on a par as regards mortality, that both are serious operations, and that possibly excision is rather the more dangerous.

The second point is, which is most successful in eradicating the disease. In answer to this, I would say decidedly that recurrence is less

likely after excision performed as above described than after arthrectomy. The parts where it is most difficult to get rid of the disease are about the margins of the cartilage, on the surface of the cartilage where small pits containing tuberculous tissue may readily be overlooked, and recesses of the joint such as the intercondyloid notch in the knee, the olecranon fossa and the neighbourhood of the orbicular ligament in the elbow, etc.; and these are parts which are cut away or thoroughly exposed in excision. Further, in arthrectomy, deposits in the bone are more likely to be overlooked than in excision, though in the latter they may also be missed. My own experience is the greater the care with which the disease is removed the better the results, and that where arthrectomy is thoroughly performed it is a satisfactory operation. Certainly I had more recurrences among the first cases in which I performed arthrectomy than I have now when I take greater pains to remove as far as possible every vestige of the disease.

The third point to be considered is the subsequent utility of the limb, and first as regards mobility. In the case of arthrectomy, where the cartilages are intact, bony ankylosis does not, of course, occur, but if the joint is kept at rest for a long time afterwards there will be much stiffness, sometimes complete; in most cases, however, there is a certain degree of movement which increases on exercise. As a matter of fact, it is not necessary to keep the joint at rest for more than a few weeks in order to allow the ligaments to reunite unless in the case of the knee, where the tendency to flexion is so great that a posterior splint must be continued for a long time.

In excision, the subsequent mobility depends in most cases on the amount of passive motion employed, though in the case of the hip an undesirable degree of mobility often remains after excision. In the knee excision leads to firm stiff joints, and arthrectomy usually also leads to stiff joints, though not so firm. In some cases, however, useful movable joints have been obtained after arthrectomy, but I do not think that is a thing to be aimed at in children. In adults I have never performed arthrectomy of the knee, but Mr. Stanley Boyd showed a case this winter where good movement was obtained. In the ankle a very excellent result as regards movement follows arthrectomy, especially with excision of the astragalus; after excision a stiff joint is the result. In the elbow both operations yield a movable joint, but arthrectomy gives the strongest arm. I have always employed passive motion after arthrectomy of the elbow, but Mr. Clutton showed several cases during the past winter where very good movement resulted from leaving matters to Nature without forcible passive motion.

Next, as regards subsequent deformity. This question has reference mainly to the knee-joint, where, after both operations to young children, there is a marked tendency to flexion, and also rotation outwards and abduction. A child sent out with the bones apparently firmly united after excision will frequently (in something like half the cases) return after some years with more or less flexion or abduction unless special measures have been adopted to guard against the occurrence of these deformities. After arthrectomy this tendency to flexion is even greater than after excision, and retentive apparatus must be persisted in for a long time with a view to preventing it. This flexion is, I think, brought about to a considerable extent by walking, the adhesions becoming gradually stretched in front; in part, also, it is due to too free removal of the fibrous textures, and depends to some extent on the incisions employed.

Lastly, as regards subsequent shortening. This is a question of

immense importance in children. In arthrectomy, unless where a deposit invades the epiphysial line, there is no interference with the growing part of the bone, and consequently no shortening, in fact sometimes slight lengthening. In excision, on the other hand, the results as regards shortening are very bad, especially in the knee-joint; hence in children excision of the knee is almost absolutely contraindicated. This also holds good as regards other joints, though no doubt to a less extent. Even after excision of the hip, more especially where the trochanter is interfered with, very serious shortening sometimes occurs, and I see a case from time to time where excision of the hip was performed in a boy four years and six months old, and where eleven years later there was 11 inches of shortening. It has been stated, as regards the knee, that if intraepiphysial excision is performed the interference with growth is not great, and Hoffa advocates this operation strongly. His experience is, however, almost unique, and there seems no doubt that in many cases of intraepiphysial excision serious interference with growth results. Thus Petersen showed a specimen where this operation was performed in a boy aged eleven, and where six years later there were 5½ inches of shortening although both epiphysial lines could be seen with more than an inch of bone between them. Thus even though the epiphysial cartilages are not actually interfered with, the condensation of the bone in connection with the healing process is apt to extend to them, and lead to their premature ossification. But after excision the limit below also often grows very imperfectly, more so than can in all places be explained by deficient use of the limb. Neuritis has been suggested as the explanation; certainly disturbances of the nervous mechanism are not uncommon after excision of the elbow for example, the pulse on the affected side being often weaker than on the other, and there being increased growth of nails and hair, increased secretion of sweat, etc. Another cause of shortening after excision of the knee-joint is that unless care is taken that the posterior edges of the bones shall correspond, the larger upper end of the tibia projects backwards into the popliteal space, presses on the vessels, and thus interferes with the circulation in the lower limb.

The conclusion, which seems to me most just, is that the proper radical operation in children, and up to fifteen or sixteen years of age, is arthrectomy, and in adults is excision. Let us consider the individual joints.

In the hip a really complete arthrectomy is almost impossible, but in children I think that in many cases partial operations, such as clearing out abscesses, partial arthrectomy, etc., are often preferable to excision as regards the ultimate results, though no doubt there are cases where removal of the head of the bone is desirable. For example, in primary acetabular disease with or without abscess inside the pelvis satisfactory access can seldom be obtained without removing the head of the bone. Again, where the head of the bone is much diseased or the epiphysial line destroyed, it is better to cut through the neck. And also in cases with septic sinuses where operation becomes necessary, slitting up the sinuses, removal of the head of the bone and subsequent stuffing of the cavity with iodoform gauze is probably the best practice. Apart from the question of shortening, which is not so very great, if only the head of the femur is removed, excision leaves a weaker and less stable joint than is obtained in other ways.

In the case of the knee-joint, arthrectomy possesses no advantage over excision as regards the immediate result; on the contrary, if a stiff joint is aimed at, a firmer result will be obtained by excision. But in patients who have not reached their full growth, the interference with growth after

excision is so serious that it should not be undertaken. Certainly in young children excision is not to be thought of for a moment; in adults, however, a better ankylosis is obtained by it, and in my opinion it is the preferable operation.

In the case of the ankle-joint, arthrectomy with or without removal of the astragalus—I think in most cases with—is the operation for children, and gives most satisfactory results. I have not had the opportunity of trying it in adults, as the cases of ankle-joint disease which I have lately had have either not been limited to the ankle, or, if so limited and requiring operation, have necessitated amputation; but I should be very much inclined in a suitable case in an adult to perform arthrectomy with removal of the astragalus, instead of excision.

The remarks which I have made as regards the knee apply also in the main to the elbow. Arthrectomy is the operation for children, and very satisfactory movement is thereby obtained. Excision is, I think, a better operation for adults.

As regards the wrist and tarsus, complete arthrectomy is, of course, impossible, and in children it is best to do what one can by partial operations. Fortunately, wrist-joint disease is not common in children, and in adults excision often gives a very good result. In the case of the tarsus in children, it is sometimes possible to get an excellent result by removal of the affected bone and synovial membrane, or of a healthy bone such as a cuneiform, so as to get at the synovial membrane. The shoulder stands, I think, on the same footing as the hip in childhood, but it is essentially a disease of adult life, and in adults excision is the radical treatment.

Time fails me to go into the operative treatment of tuberculous diseases elsewhere. The question, when removal is required, again lies between partial and complete removal; and I must say the more I work at the matter, the more I incline to complete removal where operation is necessary. Further, if complete removal can be done, clean cutting is much to be preferred to scraping. Similar partial operations, laying open sinuses, and stuffing with iodoform gauze, washing out and injecting abscesses, etc., come into play, and must be employed according to the circumstances of the case.—*British Medical Journal*, July 2, 1892, p. 15.

54.—ON THE MECHANICAL TREATMENT OF TUBERCULOUS DISEASES OF THE SPINE.

By W. Watson Cheyne, F.R.C.S., Surgeon to King's College Hospital.

[The following is taken from an abstract of Mr. Watson Cheyne's Lectures on the Treatment of Surgical Tuberculous Diseases.]

In tuberculous disease of the spine two factors are at work, in addition to the presence of the tubercle, in keeping up the chronic inflammation, namely: (1) the weight of the upper part of the body, and (2) the contraction of the muscles surrounding the diseased portion of the spine. The inflammation so kept up is apt to spread to the meninges, causing thickening of them, pachymeningitis, which may be either of a simple inflammatory nature, or may be combined with tuberculous infiltration. This pachymeningitis leads to pressure on the cord, and consequent paralysis. The other chief cause of paralysis is the extension of the tuberculous disease to the posterior part of the bodies of the vertebræ, and the subsequent formation of an abscess in the vertebral canal. The paralysis is hardly ever due to the pressure of the bone on the cord, for,

owing to the destruction of the bodies, the canal is shortened, and there is no stretching of the cord nor want of room so long as no adventitious material is present; it is possible, however, that if the curve is very acute, the cord may become kinked, and its circulation and function thus interfered with. The chief factors being, then, the weight of the body and the muscular contraction, the first indication of treatment in a case of paralysis is to remove these factors. This is best done by complete recumbency to take off the weight of the upper part of the body, and extension to the head and feet to overcome the muscular contraction (see Fig. 1). This should certainly be tried in all cases before proceeding to laminectomy, which is too much the fashion nowadays.

The importance of the second factor, the tonic contraction of the muscles around the spine, is not thoroughly realised, although Lannelongue, who is the highest authority on the pathology and treatment of spinal disease, has laid special stress on it, and has mentioned cases where, though the patent was kept absolutely recumbent, curvature has increased or developed. I have myself seen a similar case where a psoas abscess was opened in an adult, and where the patient was kept absolutely recumbent, and never allowed to sit up or raise his shoulders for any purpose whatever. When put to bed, there was no distinct evidence of curvature, but after some months an acute curvature was manifest. Some have,

FIG. 1.

indeed, thought that the object of the double extension was to undo the curvature, an attempt which would probably do harm, whereas it is to prevent the pressure of the inflamed bones against each other by the surrounding muscles.

What seems so remarkable in these cases is the very early improvement, so early as almost to tempt one to think that after all some slight opening out of the curve may have taken place relieving the pressure. Although when the extention is long continued some slight improvement in the curve does occasionally take place, I adhere to the opinion already expressed that the improvement in the paralysis is due to rapid cessation of the conjestion of the membranes and absorption of inflammatory effusions from the arrest of the undue pressure of the inflamed bones on each other.

Although in some cases laminectomy is avoided by rest and double extension, and although I think that most cases will yield to this treatment, I am far from saying that the operation may not be necessary in some cases. The membranes may not only be thickened as the result of simple inflammation but may also be infiltrated with tuberculous tissue which may not yield to treatment within a reasonable time, and for the relief of which it may be necessary to slit up the meninges. Or again, the pressure is not uncommonly due to the presence of pus in the canal, and unless this pus communicates with an abscess outside which can be opened, the only way of getting rid of the trouble will be by laminectomy. What I

wish to urge is that the operation should not be performed till a fair trial has been given to double extension in the recumbent posture.

Quite apart from the question of paralysis, I believe that the best course to adopt in all cases of spinal disease, certainly in all cases affecting the dorsal or cervical spine, is, in the first instance, extension to the head and feet, and complete immobilisation by sandbags or plaster of Paris; this treatment should be continued for two or three months. By that time the muscular contraction will have been overcome, and very likely some ankylosis will have taken place, or some buttresses of bone

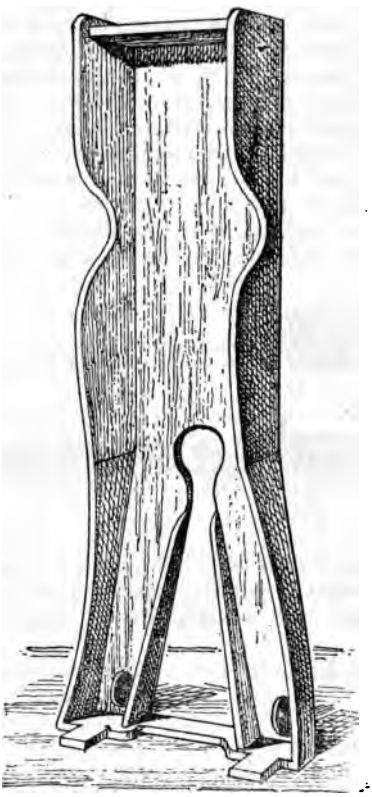

FIG. 2.

been formed; at the end of that time some apparatus may be employed. All sorts of apparatus have been devised, some showing great engineering skill, but, in the case of young children, the only satisfactory arrangements are those which secure complete fixation of the whole body, and which do not seek to support the weight of the body on an undeveloped pelvis, or by means of straps round a movable abdomen. This principal has been recognised by several surgeons, and double Thomas's splints and various other arrangements have been employed for the purpose. In my opinion, by far the best apparatus for spinal disease in young children is Phelp's box, and as this apparatus is too little known in this country, I may be pardoned if I describe it.

Phelp's box is a trough of wood, in which the patient lies, having two narrower troughs diverging from each other for the lower extremities (see Fig. 2). The box is made somewhat broader than the patient, so as to allow for lateral pads which fix him, while he rests on a mattress or

FIG. 3.

pads so arranged as to avoid undue pressure on the curve. Opposite the buttocks the wood is hollowed out so as to permit defæcation. The sides of the trough are about six inches high for the trunk, and lower for the legs ; they are hollowed out opposite the shoulders, so as to allow free play to the arms. At the feet there are vertical pieces of wood to which the feet are bandaged, a pad, of course, intervening. It is well to continue the splint about eighteen inches above the head, so as to allow room for elastic extension attached to bands under the chin and occiput, and to buckles at the top of the splint. The patient is carefully wedged in with pads and bandaged to the splint (see Fig. 3). In this apparatus the child lies at absolute rest, and is easily carried about. Further, if the head extension is applied, and the lateral pads carefully wedged in, the box may be tilted up so that the patient may look out of the window, play at a table, etc. Defæcation and micturition are performed without disturbing the patient. By undoing the bandages the front and sides and limbs of

the child are easily washed without any disturbance, and when it is necessary to wash the back the apparatus is turned upside down on a bed and then lifted off the child; the patient is replaced in the reverse manner, and not by lifting him into the box. Children should be kept in this apparatus for two or three years. The whole apparatus, with mattresses, costs from 15s. to 20s.—*British Medical Journal*, June 25, 1892, p. 1353.

55.—ON THE RADICAL CURE OF PSOAS ABSCESS.

By R. W. Murray.

The treatment of psoas abscess secondary to disease of the spine has from time immemorial been extremely unsatisfactory, and even at the present day many different practices are followed.

Deckers, writing in 1693, advised opening the abscess with a trocar; he left the canula in the cavity, stopped with a *cork*, and let out the pus at intervals. Benjamin Bell adopted a similar proceeding.

Liston advised opening the abscess when it pointed, and says: "In these cases the discharge is generally profuse, long continued, and attended with exhaustion and hectic, gradually but surely destroying the patient." "Opening the cavity and shutting it up again, however carefully conducted, is in almost every instance followed by alarming and hazardous results." Lawrence and Sir Astley Cooper, on the other hand, strongly recommended Abernethy's plan, which consisted in "puncturing the abscess obliquely, and so producing a valvular opening; evacuating the pus in a continuous stream, so that no air should gain admittance." "When the abscess is emptied as much as possible, the wound should be attentively wiped, the edges placed in exact contact and retained in that state by strips of plaster. Other writers, as Kirkland, preferred the abscess to burst of itself. Dupuytren and John Pearson both considered it dangerous to open a psoas abscess on account of the almost inevitable hectic fever.

In the present day we have much less hesitation in operating, and the treatment that is probably usually adopted is, in the first instance, absolute rest; and if, in spite of this, the abscess continues to increase, it is opened and drained from the loin, as advised by Mr. Treves, the bodies of the diseased vertebræ examined from the wound, and sequestra removed if found; the strictest antiseptic precautions being maintained throughout the whole course of the case. Some surgeons speak very highly of an injection of iodoform emulsion into the abscess-cavity; but as Mr. Erichsen says, further experience is required before its true value can be ascertained.

Though quite appreciating that the antiseptic method has put the treatment of psoas upon an entirely different footing, still, as a matter of practical experience, the treatment usually adopted leaves much to be desired.

I am quite aware that in a number of cases the abscess has disappeared and the patient has been cured simply by means of prolonged and absolute rest. But, unfortunately, a large proportion of patients suffering from psoas abscess are of the poorer classes, and absolute rest (especially in the case of children) outside a hospital is quite out of the question. On the other hand, if the abscess is opened and drained, the discharge is so profuse and long continued that antisepsis breaks down, and the case not unfrequently terminates either in lardaceous disease or general tuberculosis.

Most favourable results are now obtained in the treatment of wounds, by closing them without drainage and applying pressure, a practice that I adopt in all suitable cases.

Last year Mr. Arthur E. Barker brought forward at the London Clinical Society some cases of psoas abscess in which he had succeeded in obtaining primary union, with obliteration of the abscess-cavity, after opening the abscess in the loin, thoroughly scraping and washing its walls, and then closing the wound without drainage. The favourable results obtained by Mr. Barker induced me to adopt a similar practice. The cases I have operated upon in this manner are four in number, and in every one of them primary union with obliteration of the abscess-cavity resulted.

In one of my cases twenty ounces of pus were evacuated; on examining the vertebræ with my finger, from the wound, a loose sequestrum the size of one's thumb-nail was left lying in the side of one of the bodies of the lumbar vertebræ, and was removed. The walls of the cavity, lined with a thick, slimy membranous layer, the so-called "pyogenic membrane," were carefully scraped with a Volkmann's spoon until, as far as could be ascertained, the whole of it was removed, the lining walls now presenting a comparatively rough feel. The abscess-cavity during and after the scraping was thoroughly washed with a hot but weak antiseptic solution, a little iodoform dusted in, and the wound closed without drainage. Firm pressure by means of a pad of wood-wool wadding was applied over the situation of the psoas muscle anteriorly, and the thigh on the affected side was fixed. There was no rise of temperature after the operation. The wound was dressed on the following day, as the child had soiled her dressings, and again on the ninth day, when it was found completely healed, and there was absolutely no evidence of re-accumulation in the abscess-cavity. The patient was discharged in a Sayre's jacket and a hip Thomas, and when shown with the other three cases at a meeting of the Liverpool Medical Institution four months afterwards, there was not the slightest evidence of a psoas abscess.

One of the other cases, a girl three years of age, on whom I operated in October, 1891, was in a most unfavourable condition, for, besides spinal caries and a psoas abscess, the child had necrosis of the frontal bone, disease of both elbow-joints, and disease of the tarsus. It is now six months since the operation, and there is not the least sign of a psoas abscess.

It certainly was somewhat of a surprise to me that an abscess-cavity containing twenty ounces of pus could be thus obliterated, but the explanation I take to be as follows: On first opening the abscess and passing one's finger into the cavity, it is, so to speak, lost in a sea of pus, and it may be only with extreme difficulty that one can make out its boundaries. After all the pus has been evacuated, the walls collapse somewhat and readily come within reach of the finger, and, after the scraping and washing with hot antiseptic solution, the walls become further collapsed, and thrown into folds, and the opposing surfaces come into contact. The "pyogenic membrane" having been removed, these folds become adherent one to the other, blood-clot replaces the pus, and in return is replaced by fibrous tissue, and so obliteration of the abscess-cavity is completed. It is now more than twelve months since I operated upon my first case, and the child is at present in good health, and there is not the least sign of a psoas abscess.

As regards the details of the operation it is only necessary to say that strictly antiseptic precautions must be taken before, during, and after the operation. The abscess must be opened in the loin, for one is then near the seat of disease, and is thus enabled to examine the bodies of the diseased vertebræ and remove any loose sequestra. The lotion used for washing out should be weakly antiseptic but decidedly hot (about as wa as the hand can bear), for not only does it thus cause the abscess-wall

be thrown into folds, but also arrests any bleeding that not unfrequently takes place from vessels contained in the ruptured fibrous bands sometimes found crossing the abscess-cavity.

The after-treatment, of course, should be directed to the diseased spine, which will require mechanical support, and to improving the general health of the patient.

In relating these favourable results I trust I may induce other surgeons to adopt a practice at once so simple and so satisfactory; and I am sure the profession owes a debt of gratitude to Mr. Barker for being the first to demonstrate its practicability.—*The American Journal of the Medical Sciences*, July, 1892, p. 35.

ORGANS OF THE RESPIRATORY SYSTEM.

56.—TREATMENT OF A CASE OF CHRONIC PLEURISY BY CONTINUOUS DRAINAGE.

By B. Baskett, L.R.C.P.

The following case may be of interest, as I am unable to find any record of the disease having been so treated. The patient was under the charge of Dr. A. J. Harrison in the Bristol General Hospital, and it is by his permission that I am allowed to submit it for publication.

W. B., a middle-aged man, a sailor by occupation, with a history of previous good health, was admitted to hospital on July 13th, 1891, suffering from very considerable pleuritic effusion on the left side. All the physical signs were well marked. There was absolute dulness on percussion all over the left side, breath sounds could not be heard, and the heart was displaced well over on to the right side. The symptoms had first been noticed about six weeks before admission, but he had not been tapped. As was to be expected, he was then in a very low state of health. Aspiration was at once performed, and forty-four ounces of serous fluid were removed; but, as he showed symptoms of faintness at this point, the operation was discontinued. There was no difference in the percussion resonance after tapping, and the only change observable in the physical signs was that ægophony, which could not be heard before, was perceptible at the level of the seventh dorsal spine, and that vocal resonance was present in the upper part of the cavity. The first tapping made no permanent difference, and the fluid began obviously to reaccumulate within a few days. Aspiration was accordingly done again, and then again, in all seven times—the amount removed at each sitting varying from two to six pints. Every effort was made to restore his strength by tonic medicines and nutritious diet; and later on in the case he was put on diuretics and counter-irritants applied to the chest wall. But he went steadily down hill, and after nine weeks of this treatment matters began to wear a very grave aspect. At this stage it was finally determined to drain the pleural cavity continuously. From the cachetic state at which he had arrived there was much reason to expect that the fluid, hitherto serous under the irritation of the constant presence of a drainage-tube and the frequent exposure to the air at the time of dressing, might become purulent, however rigidly the antiseptics were maintained; but, if it did so, the inflammation thereby indicated might serve a useful purpose and close the cavity; while, if it did not, the drainage, as in other serous cavities, might restore the balance between secretion and absorption, and so end the case. Careful examination of the fluid had been made and was hereafter made,

but no tubercle was ever found, nor was there any indication of its presence in the lung substance on either side.

Accordingly an incision was made in the fifth space in the anterior half of the axilla under chloroform, and a drainage-tube inserted as for empyema. To avoid the danger of syncope from the otherwise sudden relief of pressure, a small Southey's trocar was inserted, and was allowed to remain in the left side for twenty-four hours previously to the administration of the anæsthetic; in this way nearly seven pints had been removed. Secretion continued at an enormous rate, but we were rewarded from the first by an obvious tendency to expansion on the part of the left lung; the breath sounds began at once to be heard. The case was a long one and uneventful throughout its whole course, save that the fluid gradually became purulent before three weeks had passed. The pus was always thin and watery, though very copious in amount. But in spite of the great drain on the system which so continuous and so abundant a discharge must necessarily have entailed, the man gained in health and strength gradually but distinctly. In about four months after the drainage-tube was inserted the discharge stopped, the wound healed, and he was completely restored to health. The lung has expanded as far as one could have reasonably ventured to hope. There is compensatory hypertrophy in the right lung to make up for the deficiencies of the left. The dulness is still present all over the left side, but less marked in degree. The heart has nearly regained its position. He was so well when last seen that he was about to begin work again. At intervals in the case his temperature rose intermittently. It seemed generally to be due to the shortening of the drainage-tube which every now and then appeared justifiable by reason of the lessening of the discharge. It was always remedied by reinserting a tube of the previous length, or, as once was done, by making a fresh incision farther forwards in the axilla. There was no true hectic temperature throughout his illness.—*The Lancet*, June 11, 1892, p. 1298.

57.—ON FOREIGN BODIES IN THE PHARYNX AND LARYNX.

By A. J. Brady, L.R.C.P.I., etc., Sydney, Australia.

[The following is an abstract of an interesting paper which appears in *The Australasian Medical Gazette* for September.]

Attempts to dislodge foreign bodies from the throat by the use of the probang coin-catcher, without having first made a laryngoscopic examination, are to be condemned. It is certain, as Mackenzie has before pointed out, that "a foreign body, comparatively harmless in the pharynx, is thus often driven into the larynx, or even into the bronchi, or may become impacted in the œsophagus."

It will help us in our search for foreign bodies if we know the usual sites in which they lodge. Small sharp bodies, like fish bones, often lodge between the pillars of the fauces. The patient's sensations generally lead him to think that the body is deeper than its actual situation. Method of extraction. Throw light into throat from forehead mirror, depress tongue, and extract with dressing forceps.

The vallecole, the space between the tongue and the root of the epiglottis, is a frequent site of foreign bodies. To see a body in this space it is necessary to use a throat mirror. Having seen the body, it can be extracted with a forceps with a short curve. A cotton-wadding brush on a strong curved probe on a handle will be useful to sweep out the space

and dislodge small bodies like fish bones, which may lie concealed by folds of mucous membrane. In young children we must often resort to digital examination. Even in children valuable information may be obtained as to the position of a foreign body by the use of the mirror, notwithstanding determined resistance on their part. A little blood seen in a certain part of the throat, or the glimpse of a bright body like a pin, will be enough to guide the finger of the surgeon in the right direction, when the offending substance can be seized and removed, the forceps being guided by touch.

The sinus pyriformis is a frequent resting-place for foreign bodies. The patient indicates a spot an inch and a half below the angle of the jaw on the corresponding side, as the seat of abnormal sensation. Use laryngoscope. Cause the patient to sing the note *Ah*, which will draw the aryepiglottic folds to middle line, and uncover sinus. Having seen a foreign body, extract with laryngeal forceps. Body invisible, sweep out space with large cotton-wadding brush.

Foreign bodies in the larynx are generally found at the level of the vocal cords. They ought, when possible, to be extracted by endolaryngeal methods, as others injure the voice. The application of cocaine renders operation much more easy. Paint first posterior surface of epiglottis with 20 per cent. solution of cocaine. Afterwards carry some of same solution to level of vocal cords. Repeat painting several times. Now wait five minutes; otherwise the reflex-abolishing power of the drug will not gain sway at all during the operation. Use Shrötter's laryngeal forceps and extract foreign body. To get a complete view of interior of larynx it may necessary to draw the epiglottis forward with a laryngeal probe.—*The Australasian Medical Gazette*, September, 1892.

ALIMENTARY CANAL.

58.—VOLKMANN'S OPERATION FOR CANCER OF THE TONGUE.

By N. P. Dandridge, M.D., Cincinnati.

[The following description of Volkmann's operation is taken from an important article on the Surgery of the Tongue:]

The extraordinary success which has followed Volkmann's method of operation as recently reported by Krause renders it desirable to describe the special procedure which has been adopted by this surgeon. In ninety-one cases of tongue cancer which were operated on there were only two deaths directly attributable to the operation. Tracheotomy and tamponade are discarded and splitting of the cheek considered useless. The following account of the two methods adopted is taken from the *Annual* 1890:—"If the tongue can be drawn beyond the dental arch a resection is made by means of a knife or scissors, while the patient is seated upright in a chair so that the blood flows away from the pharynx and there is no danger of its being drawn into the lungs. After bleeding is checked the mucous membrane can at once be brought together, or if there is a long strip of healthy tongue left this can be brought around so that a short but broad organ is left. If, however, the carcinoma extends so far posteriorly that strong traction is not sufficient to bring it near the dental arch, or if it has involved the floor of the mouth or tonsils, then the parts can be best exposed by dividing laterally the submaxillary bone. The patient is

upon a table in an almost sitting posture, a traction thread is passed through the tongue and the latter is drawn forcibly forward. The lower canine or first molar tooth is then drawn, after which an incision is carried directly downward from the corner of the mouth to the larynx, dividing the periosteum of the lower jaw, but made more superficial in the neck. The periosteum on the lower surface of the lower jaw is now pushed aside sufficiently to allow a broad iron lever to be passed upward until it rests upon and protects the upper lip. The jaw is divided upon this lever by a thin broad-bladed amputation saw, cutting obliquely backward, a strong resection hook is placed in each opening of the exposed intra-maxillary canal, the two portions of bone are drawn forcibly apart and the soft parts of the mouth are divided on a line of the first incision. Sufficient room is given for readily securing all bleeding vessels. The palato-glossal fold is divided and a drainage-tube the size of the little finger placed in the tonsillar fossa and curved to the lower portion of the neck incision." Thirty-five cases gave one death due to pneumonia. "The cut surfaces are covered by mucous membrane and the bone wired. The patient retains a half reclining posture and is fed on liquid diet by means of a long glass tube extending far back into the mouth, which is irrigated after each meal with a three per cent. boracic acid solution. One case was living after six years—the average of life was about one year. Of thirty-seven partial excisions three have survived without relapse for over three years."—*Annals of Surgery*, August, 1892, p. 114.

59.—CICATRICIAL STRICTURE OF THE PYLORUS; PYLOROPLASTY; CURE.

By James Limont, M.B., M.R.C.P., and Fredk. Page, M.D., M.R.C.S.

History of the Case and Remarks by Dr. Limont.—D. H., aged thirty-one, a stonemason, was admitted to the Royal Infirmary, Newcastle-on-Tyne, in November, 1891, complaining of indigestion of fourteen years' duration. Up to the age of seventeen the patient had no trouble with digestion. One day fourteen years ago, he received a severe blow from the shaft of a heavily laden "bogie," which had broken loose on an incline. The end of the shaft struck him with great force in the region of the stomach, and pinned him against a large stone. He remained in bed four days vomiting frequently, even fluids at once bringing on an attack. After a time he returned to work, but for almost a year he vomited nearly every evening, and suffered from pain in the region of the stomach. During the next six months he was free from all trouble. Since that time, however, he has been subject to recurring attacks of vomiting, with more or less pain. At first the attacks would last from two to three weeks, and the intervals from two to three months. During the last two years, however, the attacks have been more frequent, lasting three or four days, with intervals of not more than four days. Before admission to hospital he had become unable to work, through discomfort and weakness. His weight, which a few years ago was eight stone seven pounds, was reduced to six stone nine pounds. He stated that his appetite was good, especially in the mornings, but that half an hour after eating he felt greatly distended and had a heavy dragging pain in the abdomen. At irregular intervals he vomited very large quantities of a sour character, bringing up at the same time much wind. After vomiting he was markedly relieved and soon became very hungry. If he then took a meal he suffered little inconvenience, but the subsequent meals gave more and more discomfort. The bowels

were very confined. The stomach could be seen to be markedly distended and the usual signs of dilatation were made out. In the left nipple line the stomach extended from the fifth space to the level of the umbilicus and could be made out to reach two inches to the right of the umbilicus. Towards its pyloric end could be felt a small hard body about the size of the distal phalanx of the little finger; it was not tender and moved freely with respiration. The case was diagnosed as fibrous stricture of the pylorus, probably of traumatic origin. For a month the case was treated by daily washing out the stomach by means of an irrigator. No appreciable improvement followed, and operative interference was suggested to the patient. He, however, left the hospital, but returned in February weaker and more emaciated than before, and was transferred to the surgical wards.

That this is an example of traumatic stricture one can scarcely doubt, when regard is had to the form of violence, the succession of symptoms and the condition found during operation. I have been unable to find a record of a similar case. Dr. S. Fenwick refers to dilatation following blows, but says it is generally due to displacement of the stomach produced by adhesions. The stricture, here must have existed for many years, its injurious effects being, however, greatly lessened by compensatory hypertrophy of the walls. Even at the time of the operation the thickness of the wall was found to be greater than normal. It is interesting to find that a stomach dilated for so many years can regain its normal powers. Apparently neither the muscular fibres nor the mucous membrane has undergone appreciable permanent deterioration.

Operation and Remarks by Mr. Page.—On March 2, 1892, the patient's stomach having been washed out with a solution of boracic acid, the abdomen was opened by a median incision, extending from the ensiform cartilage to the umbilicus. On the anterior surface of the stomach, close to the pylorus, a puckering of the peritoneum was seen, about the size of a shilling. Beneath this puckering, and occupying an area of about twice its size, a hard mass could be felt in the substance of the stomach wall. Sponges were packed about the pylorus, so as to prevent blood and mucus escaping into the peritoneal cavity. The hard mass was then cut through with scissors and the incision carried into the stomach in one direction and into the duodenum in the other, beyond the limits of the induration. The mucus and peritoneal edges of the wound were then sewn together over the muscular coat with a continuous suture of fine silk. The left angle of the wound (ending in the stomach) was next secured to the right angle (ending in the duodenum) with a Lembert's suture of silk. This converted an incision which had been made almost at right angles to the long axis of the body into one nearly parallel to it. The wound was closed with a double row of Lembert's sutures and covered with a graft of omentum. The sponges were removed and the abdominal incision sutured with silkworm gut. The patient suffered very little inconvenience from the operation. He vomited a few hours after and has never been sick since. For eight days he was fed entirely by the rectum. On the ninth day fluids were taken by the mouth, and on the sixteen he took fish and gradually returned to his ordinary diet. On March 31st (twenty-nine days after the operation) he weighed 7 st. 8½ lb., having gained 1 st. 3½ lb. He is now (June 12th) quite well, weighs 10 st., and has resumed his ordinary occupation.

Of the surgical procedure at our disposal for the treatment of stricture of the pylorus of a non-malignant character pyloroplasty—the ingenious operation suggested by Mikulicz and Heinke almost contemporaneously—

seem to be by far the most satisfactory in its results. It has been practised pretty extensively on the Continent and in America.—*The Lancet*, July 9, 1892, p. 84.

60.—ON CHOLECYSTENTEROSTOMY.

By J. McFadden Gaston, M.D., Atlanta, Ga.

To Nussbaum is attributed the first suggestion of relieving the occlusion of the common bile-duct by conveying the bile into the intestinal canal through artificial openings in the adherent walls of the gall-bladder and the intestine; but the credit of having first accomplished this result upon the human being is undoubtedly due to Von Winiwater; and it affords me the greatest satisfaction to award him the honour of priority in the execution of cholecystenterostomy.

We are informed that between the 20th of July, 1880, and the 14th of November, 1881, he treated for sixteen months a man, aged thirty-four years, who suffered from obstruction of the common bile-duct, and who was subjected to six different operations for the formation of a fistula between the gall-bladder and the colon.

All kinds of difficulties thwarted this undertaking, but it is claimed that the surgeon eventually succeeded in attaching the gall-bladder to a coil of the small intestine, and effecting a fistulous communication, by which the bile escaped into the intestinal canal, thus obviating the inconveniences of an external outlet.

After a lapse of six years, during which the various experiments on dogs by Golzi, Page, and myself were performed, Monastyrski united the gall-bladder with the jejunum, on the 4th of June, 1887. He incised the abdominal wall, punctured the gall-bladder, incised its walls and those of the jejunum, and sutured the edges with catgut. A fistulous communication secured two metres below the duodenum, but death ensued ultimately from carcinoma of the head of the pancreas, as verified by the autopsy.

The operation of Kappeler came next in the order of time, being done on the 6th of July, 1887, by uniting the gall-bladder with the ileum by Wölfler's suture. The patient progressed favourably for a time, and returned to work, but eventually died on September 9, 1888, fifteen months after the operation. The autopsy showed that a fistula had been established about eight feet from the ileocecal valve, and that its intestinal orifice was provided with a valve that allowed the contents of the gall-bladder to pass into the intestine, but prevented the passage of intestinal contents into the gall-bladder. Doubtless a similar provision exists in all such cases.

In the year following the operation of Kappeler, Fritsche established a fistulous opening from the gall-bladder into the jejunum, three metres below the pylorus. At the post-mortem examination a carcinoma of the size of a walnut was found at the mouth of the common bile-duct. Socin and Bardenheuer each attached the gall-bladder to a loop of the small intestine. The case of the latter died in the fourth week, and no fistula was found. It is said that the operation was done with elastic ligatures.

On March 2, 1889, Robson operated upon a patient that had previously been subjected to cholecystotomy, when the ducts were found, and the gall-bladder was attached to the abdominal wall by firm adhesions. The common duct subsequently becoming occluded, an incision was made through the scar from the former operation, in the semilunar line, and it was found that the attachment of the gall-bladder could only be effected with the colon. Both were incised, and united with chromic

catgut in two rows. The former external fistula was closed by suture, and a drainage-tube was inserted in the wound. After one day, bile came out of the drainage-tube, and also fæcal matter from the intestinal wound. In spite of this complication, a speedy recovery, with the appearance of bilious matter in the fæces, is reported.

On July 13, 1889, Terrier performed an operation for the relief of occlusion of the common duct. An incision was made in the median line above the navel. The gall-bladder was punctured and the contents evacuated. Upon incising its walls and exploring its cavity no stones were found and the cystic duct was open. In the oblong enlargement of the common duct was impacted a gall-stone which could not be removed. After attaching the gall-bladder to the duodenum by a circular or oblong row of catgut sutures, and before tying the last stitches, the walls of both were incised and a rubber drainage-tube was introduced, so as to pass from the cavity of the gall-bladder into the duodenum. The fundus of the gall-bladder was sutured to the lower angle of the external incision, which was then closed by catgut sutures. There was fever until August 1st, but the itching and jaundice gradually disappeared. The drainage-tube passed off with the evacuations nine days after the operation, and the stools gave evidence of the presence of bile. The external wound healed by first intention. The patient was dismissed on August 10th in ordinary health.

This patient died in the spring of 1890 from influenza, and no gall-stone was found in the common bile-duct.

Courvoisier, in like manner with Robson, performed the operation of natural cholecystotomy upon a patient, without obtaining a satisfactory result. After the lapse of a year, complications arose that demanded the performance of cholecystenterostomy, and this was done on the 28th of March, 1890. An incision was made through the abdominal wall, below the ribs, along the border of the liver. The gall-bladder was detached from the abdominal wall, and after incising the sac, the gall-stone was removed from the common duct and others scooped from the hepatic ducts.

An incision into the lower surface of the gall-bladder was united to the colon by an oval row of catgut sutures, and before putting in the last stitches the wall of the colon was incised. The fistulous parts of the gall-bladder were cut away and the edges stitched. Two drainage-tubes were inserted and the external wound was closed around them. There was no fever after April 2d. Bile was found on the dressings, but its source was not determined. Bile appeared in the stools on the 6th of April, and on the 8th the drainage-tubes were removed and the external wound was sutured. On the 15th of April the patient was free from jaundice and got up feeling very well. The case was dismissed about the middle of May, and in the middle of July her condition was excellent. There was no more colic or jaundice.

Courvoisier thus sums up the result of these seven cases. One case operated upon died, as a consequence of a complication which should not be charged to the method. All the others recovered from the operations, but in four of the cases the carcinomatous condition of the pancreas caused death at a later period. A definite final cure is claimed only in the cases of Robson and Courvoisier, in which, it will be remembered, the gall-bladder was attached to the colon, not by choice, but from necessity.

The practicability of effecting an outlet from the gall-bladder into the intestinal canal can no longer be doubted, and in the view of Courvoisier

it stands more and more securely as the details from trustworthy sources become more widely disseminated.

The indications for the operation are formulated by him as follows :— (*a*) When biliary fistulæ are difficult of removal, whether traumatic, ulcerative, or operative ; (*b*) in permanent obstruction of the common bile-duct (except in cases of gall-stones) ; (*c*) in traumatic or ulcerative communications between the common duct and the abdominal wall.

Operation is contra-indicated : (1) When the patients have grown very feeble, in which cases provisional cholecystostomy might be performed ; (2) when the common duct is obstructed by gall-stones, in which cases common cholelithotomy, with stitching or lithotripsy, is indicated.

A case of cholecystenterostomy has been reported by Helferich, in the *Deutsche medicinische Wochenschrift*, February 25, 1892, for the details of which I am indebted to Dr. P. J. Rosenheim, of New York.

The patient, a man aged thirty-nine, had suffered periodically from pains in the stomach since 1885, and developed jaundice in April, 1891. During the following month he had attacks of biliary colic, recurring every fortnight, the jaundice being more marked after every attack. It was thought that the common duct was obstructed by calculi, and an operation for their removal was undertaken in November. An incision was made midway between the lower border of the ribs and the lower border of the enlarged liver, extending vertically in the linea alba to the ensiform cartilage. After the liver had been retracted, the gall-bladder came into view; it contained no calculi, but an examination disclosed a number of calculi in the common bile-duct, which it was found impracticable to remove. An opening was therefore made in the gall-bladder and another in the first part of the jejunum, and a communication was established between these viscera by suturing the corresponding margins of the apertures. The fistula thus formed was of the calibre of a lead-pencil. The patient made a rapid recovery, the symptoms of jaundice having disappeared. During the following January he experienced two light attacks of fever, without any jaundice, attributed to calculi in the common bile-duct. As a means of affording palliation of his sufferings, the operation was a success.

Chavasse has reported in *The Lancet* an interesting case in which an anastomosis between the gall-bladder and the colon was effected by a process differing materially from the previous operations. A man, forty-eight years old, had undergone cholecystotomy for the relief of jaundice, dependent upon biliary obstruction by calculi, which was followed by the persistence of a biliary fistula. Other measures failing, with the aid of Senn's bone-plates a communication was established between the gall-bladder and the colon at its hepatic flexure. At first, bile and fæcal matter were discharged through the abdominal wound, but ultimately this closed, the stools were passed naturally, and the general condition of the patient was much improved.

Korte also reports a successful case of the union of the gall-bladder with the duodenum, after the manner of Terrier, thus affording two favourable results from duodeno-cholecystotomy.

So far as the operations are to be considered, those of Kappeler and Terrier were successes, and being added to the other six cases with finally good results, we have eight cures of twelve in which the operation of cholecystenterostomy has been successfully performed, being a mortality of only 25 per cent. from the operations.

This encourages the expectations with improved methods of obtaining a satisfactory solution of the problem of relief for occlusion of the common

bile-duct. While other means may be employed for correcting temporary obstructions of the ducts, the great desideratum in occlusion of the common duct is to provide an artificial opening from the gall-bladder or duct into the duodenum or the adjacent portion of the intestinal canal.—*Medical News*, June 11, 1892, p. 652.

61.—ON THE CAUSES AND TREATMENT OF INTUSSUSCEPTION.

By Cecil Y. Bliss, M.D., F.R.C.P., Senior Assistant Physician to the Middlesex Hospital, and A. Pearce Gould, F.R.C.S., Assistant Surgeon to the Middlesex Hospital.

[Dr. Bliss and Mr. Pearce Gould append the following general remarks to the narrative of a case of intussusception treated successfully by laparotomy and reduction, occurring in a child four and a half years old.]

The case illustrates three points in the clinical history of this disease, under which, respectfully, a few remarks may be made:

1. *Causation.*—Invagination of one section of the intestine into another below it, is occasioned, generally speaking, by too sudden or unusally forcible peristaltic action in the upper portion of the two. Of such cases the term "invaginatio spasmodica" has been used; and the experiments of Nothnagel (quoted by Treves, *Intestinal Obstruction*, p. 204) have proved that electrical stimulation, producing sudden contraction, does actually lead to intussusception of the contracted portion. In the child treated by us, the sudden fall down some stone steps, in which the abdomen may have been struck, or jarred, or the general shock of which may have acted as a stimulus to peristaltic action, was the apparent cause of intussusception. No other cause can be traced.

2. *Treatment by Inflation, or Injection.*—It is probable that the view most generally held is, that in cases of recent occurrence, where the intussusception is not too large, nor the duration so prolonged as to suggest inflammatory adhesions, gangrene, or softening of the coats of the bowel, treatment by injection of water, or insufflation of air, ought to be tried with all due precautions, before any proposal to open the abdomen is entertained. We are not prepared at present to seriously demur to this view, generally stated; and, indeed, in our case we acted upon it. It is, however, noteworthy that the action taken was perfectly futile. Insufflation was cautiously but sufficiently performed. The injected air was repeatedly felt swelling up the bowel to the point of intussusception, but effecting no alteration in the tumour. Now, as the obstacle to reduction in this case was simply the muscular clasp of the intestinal wall, and the intussusception was comparatively small, it would appear to have been a favourable case for insufflation; but that means of treatment entirely failed. The whole case for injection, or insufflation, must, however, be regarded as open to objection on other grounds than that of occasional futility. It appears a grave question whether the amount of force often employed does not expose the intestine to serious risk of rupture, especially in cases where the injury is not recent; a danger which at present it is difficult to estimate, for want of a sufficient number of reported cases. It is exceedingly probable that those in which the intussusception has been reduced by this means, but which eventually terminate unfavourably, have really undergone rupture of the bowel, or its peritoneal coat, in consequence of the forcible distension employed, with the inevitable result of fatal peritonitis. In this connection we would draw attention to a valuable contribution to the subject by Dr. Mortimer, in *The Lancet* of May 23d

last, based upon experimental and clinical observations. Reference may also be made to a paper on "Three Cases of Intussusception Treated by Inflation," by Dr. Frederick Taylor, in the *Clin. Soc. Trans.*, vol. xvi., p. 64. His first two cases were cured, but the last ended fatally, after having apparently undergone reduction by the treatment with air. It is possible that here, where the results of inflation were so delusive, the patient might have been saved by early abdominal section.

Another objection to the plan of inflation is the liability to recurrence of the intussusception. Many recorded cases illustrate this. It is capable of two explanations. In some cases it would seem as if the invagination had not been completely reduced, although the tumour previously felt had disappeared; and so, when the pressure from below was removed, the intussusception quickly increased again to its former size. But another fact must not be lost sight of. However employed, whether air, hydrogen gas, or water is used, the bowel at, above, and below the intussusception is distended. Active peristalsis is thereby excited, and in the swelled and congested state of the parts, recurrence of the invagination is only too prone to occur. The treatment by inflation fails to leave the parts after reduction at rest; and that is a serious and inevitable result of its employment.

3. *Laparotomy.*—This is certainly the most effective, and probably in view of modern antiseptic methods, the safest mode of treatment. In cases seen sufficiently early, the prospects must be regarded as exceedingly good. In our own case the operation was easily performed, the intussusception readily reduced, and recovery ensued without a bad symptom. Considering the dangers attending inflation, it is probable that the risks of abdominal section, in cases where no great delay has occurred, are distinctly less than those of the inflation and injection method; and it appears likely that a wider experience of the operation, both on the part of the profession and the public, will lead to its more frequent and early adoption, with the result that intussusception will become a much less fatal affection than it is at present.

In this case the incision was made in the left *linea semilunaris* instead of the *linea alba*, and with the best results. It must be remembered that the mere invagination of a coil of bowel so draws upon its mesentery as to fix it more or less, and often to such a degree that unless the operation-wound is placed over the tumour it is extremely difficult, if not impossible, to expose the intussusception clearly. We would, therefore, recommend that in all cases the incision should be made over the tumour. Having exposed the tumour, its reduction must only be attempted in one way—by gentle pressure on the invagination from below, and not by traction from above. The danger at this point is laceration of the bowel, which commences at the peritoneum. Such a lesion can be produced very readily indeed by traction, while with upward pressure it cannot. Of course, this pressure, as in all other intra-peritoneal manipulations, must be made with great care and gentleness, and the surgeon must make certain of having completely reduced the invagination. Senn has proposed that after reduction the mesentery of the offending portion of bowel should be shortened by a fine catgut suture. A case under the care of one of us, in which laparotomy was performed twice for intussusception within three months, shows the liability to a true recurrence of the affection (*Med. Times and Gazette*, 1891). With that case in our recollection we did not employ the suture in the case now recorded; and we should be inclined to reserve it for those cases where the mesentery is usually long. Such a suture may be injurious by interfering with the blood-supply of the bowel; and it must be so placed as to reduce to a minimum this danger.

The after-treatment of such a case as this may be summed up in the one word, *rest*. For this reason a dressing firmly fixed on by strips of plaster is much to be preferred to a binder. Solid food must be withheld for a week or ten days, and no steps should be taken to obtain an evacuation of the bowels before the tenth day, unless specially indicated. However well the patient may be, he should not be allowed to sit up, or move freely about the bed, for the first week, for any such sudden change of posture may be followed by recurrence of the invagination.—*The American Journal of the Medical Science*, June, 1892, p. 671.

62.—ON INTESTINAL ANASTOMOSIS AND SUTURING.

By Robert Abbe, M.D., Surgeon to St. Luke's Hospital, N. Y.

Dr. Abbe's paper, from which the following excerpt is taken, contains the narrative of five cases, of which the following are the headings:

Case 1. Intractable Fæcal Fistula: Resection of two inches of Ileum; Lateral Anastomosis. Recovery.

Case 2. Double Intestinal Obstruction; Resection of Cancer of Sigmoid Flexure; Lateral Anastomosis. Recovery.

Case 3. Intestinal Obstruction from Incarcerated Hernia; Resection; Lateral Anastomosis. Recovery.

Case 4. Resection of six inches of the Rectum by Kraske's Method; Circular Suture. Recovery.

Case 5. Strangulated Hernia; Gangrenous Gut; Incision; Longitudinal Suture. Recovery.

It has been with uninterrupted interest that the surgical world has for several years watched the reported researches in the field of intestinal surgery for the development of additional resources to enable it to cope with the complex accidents in this field. Experimental work has shown that the use of artificial aids in restoring the intestinal canal by anastomosis is feasible by such means as bone-plates, catgut rings, segmented rubber rings, or vegetable plates. Their use has largely been confined to experiments upon dogs, and their boasted advantage has been that there will be a reduction of time at operations. While not denying the utility of experiments upon dogs (for I am myself indebted largely to this work for valuable lessons) I would emphasise the contrast that exists between operative work in dogs and in the human subject, on account of the relative quality and reparative action in the two species. It is extremely easy to accomplish satisfactory recoveries in surgery of dogs' intestines by almost any method.

Accumulating evidence of the methods applied to the human body may now be weighed by those of experience in this field. From evidence of published and unpublished cases it can be shown that in the hands of even competent men, using any of the artificial aids to accelerate the operation, the accidents may occur of having leakage, or suppuration, or hemorrhage, or obstruction from plates, or irritation of the canal from so considerable a foreign body. The question of time gained during what is usually a prolonged operation, perhaps at most five or ten minutes, in the face of the uncertain advantage of bone-plates, etc., is one that in my opinion is greatly outweighed by the superior advantage of having absolute security against leakage, blocking, etc., by the method of simple suturing. The technique of the latter procedure is a matter of easier accomplishment and far greater satisfaction in its results than that of the newer methods.

There is one feature of the operation of anastomosis which has heretofore received no special attention, but which I believe to be of the very greatest moment in determining the lasting benefit of the operation, that is, the question of stenosis of the newly-made orifice. The law of cicatricial contraction, that operates so effectually in closing accidentally made fistulæ into the intestinal tract, or comparatively large ulcerations between the gall-bladder and the intestines, is here the direct antagonist of the surgeon in his endeavour to create a permanent and adequate anastomatic opening. The incised opening made for the use of Senn's plates is about one inch and a half in length, and the contraction of such an opening, sometimes with great rapidity, has in some cases rendered it entirely inadequate to its service. Not many autopsies remote from the date of operation are as yet recorded. Three of my cases of lateral anastomosis illustrate the subject admirably. In the first, done in 1888, between the ascending and transverse colon, where I had used Senn's plates, the patient dying six months after operation, the aperture, which was one inch and a half in length, had contracted to three fourths of an inch, and was sufficient for its purpose only when laxative medicine was constantly given. In the second case, the patient dying six months after anastomosis, with catgut rings, the opening had contracted from one inch and a half down to a half-inch. In the third case, eight months after lateral anastomosis of the sigmoid by suturing, the aperture contracted from three inches to one and a half. This was perfectly competent to do the functional work of the bowel.

These results were relatively good, but not so perfect as that which so far has been brilliantly demonstrated in two of the other cases just reported, where lateral anastomosis by suturing around a four-inch opening was done with instant and absolute functional restoration.

I believe the future utility of lateral anastomosis lies in making openings four inches in length in the sides of adjacent bowel. This, I contend, is almost impossible with bone-plates, and only to be done by very long catgut rings or vegetable plates, with less security and as much consumption of time as by suturing. The contrast is enormous between dropping back into the abnormal cavity a beautifully sutured, absolutely tight and flexible anastomosed end of intestine to any position in the abdomen which its natural surroundings demand, and the returning a huge bunch of bowel, inside which there is a pair of five-inch plates of bone or raw potato, to remain as irritating foreign bodies stimulating peristalsis, and tugging at the wound until they are softened enough to be swept on by the current, or, as in one of Senn's cases, to be vomited up after dangerous retching.

As regards time, even were it proved that a hand equally expert at each method could do that by plates a few minutes quicker, the relative advantage of the two procedures for safety still lies with suturing.

But, as a matter of fact, I have found that to do thoroughly a lateral operation in the living subject, by either plates or rings, takes twenty or twenty-five minutes, and the same operation by simple suturing, done with the greatest nicety and perfect security, has taken me twenty minutes.

The six cases of lateral anastomosis of bowel to bowel, as well as the gastroenterostomy and other intestinal suturings which I have reported (*Philadelphia Medical News*, June 1, 1889), speak strongly in favour of the uniform use of suturing alone. The one fatal one of the six lateral cases was where I made immediate apposition of an enormously distended bowel above an obstruction to a collapsed portion below it, the patient being already in a deplorably bad condition.

Since that and other experiences with great fæcal accumulations I have strongly advocated the uniform practice of first creating an artificial anus, allowing a few days for recuperation, and avoiding the fæcal toxæmia, which, I believe, is a serious factor when the stagnant flood of fluid fæces flows freely into the unused and receptive bowel eager for absorption.

The perfect technique of suturing will be found in the following method :—

Bring the two surfaces that it is proposed to unite well up in the wound, and surround them by small compresses of gauze or towels or flat sponges wrung out of hot water.

Have at hand a half dozen fine cambric needles threaded with ordinary finest black embroidery silk that has been well boiled and kept in alcohol. Cut in lengths of not more than twenty-four inches and tie with a single knot at the eye of the needle, with one end cut to within two inches. Apply two parallel rows of continuous Lembert suture, a quarter of an inch apart, and an inch longer than the proposed cut. Leave each thread with its needle attached at the end of its row. Now open the bowel by scissors, cutting a quarter of an inch from the sutures, both rows of which are to remain on one side of the cut. Make the bowel opening four inches long. Apply clamps temporarily to several bleeding points, pinching the entire thickness of the cut edge without hesitation. Apply no ligatures. Treat the opposing bowel in the same manner. The clamps remaining *in situ*, the parts are quickly rinsed with water. Another silk suture is now started at one corner of the openings and unites by a quick overhand the two cut edges lying next the first rows of sutures. The needle pierces both mucous and serous coats, and thus secures the bleeding vessels, from which the clamps are removed as the needle reaches them. This suturing is then continued round each free edge in turn, and all bleeding points are thus secured more quickly than by ligature. The serous surfaces around these button-holes are then rapidly secured by a continuation of the sutures first applied, the same threads being used, the one nearest the cut edge first. The united parts are again rinsed with water and dropped into the abdomen.

In conclusion, I would reiterate my conviction : 1. That the attempt to simplify the technique of lateral anastomosis by bone-plates and other devices has not improved it. 2. That lateral anastomosis properly done is eminently the safest and best method of restoring the canal in most cases. 3. That simple and thorough suturing with a fine silk continuous suture, applied after the manner detailed, is most satisfactory. 4. That in order to allow for the inevitable tendency to stenosis an aperture four inches long should be made between bowels. 5. That scarifying opposing surfaces is entirely unnecessary to quick and solid repair.—*The New York Medical Record*, April 2, 1892, p. 368.

63.—ACUTE INTESTINAL OBSTRUCTION: OPERATION BY SHORT CIRCUIT.

By Edward Atkinson, Senior Surgeon to the Leeds Infirmary.

G. F., aged twenty-two, was admitted into the General Infirmary, under Dr. Churton, on Wednesday, November 25th, 1891, suffering severe pain in the right side of the abdomen. In Dr. Churton's absence Dr. Jacob asked me to see the patient with him, when the following history was elicited :—Nine days previously he was seized with severe pain in the epigastrium and right side of the abdomen. He left his work and remained at home two days, taking castor oil and other medicines, which were vom-

ited, together with all the food he took. The third day, feeling better, he went to work again for two days, when the symptoms returned, and on Friday, the 20th, he kept his bed. The next day acute pain came on and vomiting, nothing having passed the bowels for some days. On the Sunday he passed a small motion and felt somewhat better for it, but on Monday the pain and vomiting returned, and lasted without intermission till his admission on Wednesday afternoon (the 25th), and no more motion had passed. On examination the abdomen was tense and tympanitic, especially on the right side. The patient complained of pain of a sickening character right across the hypogastrium, and he had manifest tenderness on pressure over a limited area in the right iliac region. There was resonance over the whole abdomen, and the movements of the small intestine could be distinctly seen. The patient said he had passed a little flatus in the morning, but two enemata given him after being admitted into hospital had not been followed by any further relief. The symptoms seem partly to point to the cæcum or vermiform appendix, but the vermicular movement of the small intestine suggested that the obstruction was higher up. However, the fact that he had had no opiate, and his statement of having passed a little flatus, induced me to order a hypodermic injection of morphia, as it was late at night, and to wait till the morning. The next day he was no better, and so I resolved to explore. At 10 A. M., under chloroform, I made an incision five inches long over the outer border of the right rectus muscle. On opening the peritoneum a quantity of clear fluid escaped. Nothing suggestive of typhlitis or perityphlitis was found, but distended coils of small intestines presented at the wound. These were united to one another and to the iliac fossa by broad bands of adhesion, not recent, and prevented my being able to draw them forward or trace their course. These bands were evidently not the cause of obstruction. Being unable to see or feel any large intestine, I carefully tied and divided one or two of the broad bands, which enabled me to turn aside a coil of small intestine, and then found the cæcum behind it empty. It being now evident that the matting of the bowels rendered any further search for the cause of the obstruction impossible, the only course which seemed available was to bring the small intestine out of the wound and make an artificial anus: but Mr. Littlewood, who was present, suggested to me that the expedient of short circuiting, which he had performed in the case which he had read to the Society a fortnight previously, would be equally applicable here. Accordingly I opened the collapsed colon, as much above the cæcum as I could reach, and inserted a Senn's bone-plate; and after isolating the nearest coil of ileum, and securing it by tying a piece of indiarubber tubing round it, I opened it and inserted the corresponding plate. The large and small gut, being now brought into apposition, were further secured by marginal sutures around the plates, and the peritoneal wound was closed with deep silk sutures and silkworm gut for the external wound. Altogether the operation lasted an hour and a quarter. Within twelve hours after the patient had two large liquid motions, and next morning he expressed himself as feeling quite comfortable. His recovery has been uninterrupted, except for an abscess in the abdominal wall about a week afterwards, which soon cleared up. He was kept without food for three days, then small quantities of milk were allowed, and in a week afterwards he took rice pudding and mincemeat, and is now on ordinary diet.

It will readily be seen how immense an advance this procedure offers in the treatment of those cases of acute obstruction where the cause is, after careful research, either undiscovered or out of reach; and which otherwise would have to be relegated to the category of incurable cases,

or dealt with by the formation of an artificial anus. With this new departure one may hope that few cases of obstruction will arise in which relief is unattainable, if treated in time.—*The Lancet*, May 7, 1892, p. 1024.

64.—ON THE USE OF "TAXIS" IN STRANGULATED HERNIA.

By W. H. Bennett, F.R.C.S., Surgeon to St. George's Hospital.

[Mr. Bennett says the relative safety of this plan of treatment is dependent upon three conditions, which he proceeds to discuss as follows:]

1. *The mode of applying "taxis."*—This may appear such a purely elementary point as to render its consideration hardly justifiable outside the pages of a student's text book. It is nevertheless true that practitioners, otherwise intelligent and trustworthy, do at times manipulate a hernia in the manner best calculated to cause injury to the contents of the sac, whilst it affords the least possible chance of effecting reduction. I do not propose to occupy space with a description of the method by which the taxis may be applied safely and with a fair prospect of success, as it can be more usefully learnt from practical demonstration at the bedside, but some of the details of the process are so important and essential that they require a passing notice. The details referred to are as follows: (1) All manipulations should be conducted only with thoroughly warm hands; (2) the neck of the hernia should be firmly supported by one hand whilst the other manipulates the body of the tumour; (3) in using the fingers all pressure from the finger-ends should be made by the front of the digital pad and never by the actual tips; (4) the pressure necessary in the manipulations should be gentle, firm and regular, not forcible, unsteady and spasmodic. The necessity for warm hands, for the support afforded to the neck of the hernia, and for the avoidance of the use of the actual finger-tips, is, I cannot help feeling, not so universally acknowledged as it certainly should be, for I have more than once seen attempts made at the reduction of a rupture by grasping the body of the tumour with hands almost blue with cold, the neck of the hernia being left entirely unsupported, and then with a punching and rolling movement, during which the finger-tips have been deeply pressed into the parts, the force has been gradually increased until further persistence in the attempt has been rendered impracticable by the protests of the patient. Where injury is possible it is from some such faulty plan as this it is most likely to result. The cold hands excite every resistance in the way of muscular action; the want of support to the neck of the hernia makes its reduction very unlikely by allowing the gut to bulge over the margins of the constricting ring, and, beyond this, in neglected or long-standing cases, when the bowel has commenced to ulcerate from within, the pressure of the sharp edges of the stricture acts at a great advantage in further injuring and perhaps bursting the thinned and weakened intestinal walls. Finally the sharply indenting finger-tips are admirably adapted for causing an unnecessary amount of bruising and possibly laceration of the gut.

2. *The time which should be occupied in taxis.*—Judging from my own experience, and from what I have seen in the practice of others, five minutes should be taken as the outside limit during which manipulation of a hernia in cases of apparent strangulation or when impulse on coughing is absent may be safely persisted in, no matter how gently it is applied. In unstrangulated cases the same time should always be considered as sufficient, for, although no actual harm need result, if the time be ex-

tended it may very easily produce it; moreover, if success is not attained by the end of five minutes it is very unlikely to result at all, and further attempts are practically useless.

3. *The condition of the hernia.*—When properly applied and with the precautions just mentioned taxis may be used with safety—(*a*) In all cases in which the true hernia impulse is present, provided always that there is neither any marked tenderness nor inflammation in the sac or its contents, when its employment would of course be entirely negatived; (*b*) in very recent cases of strangulation where the tension is not extreme. This latter is a recognised principle and is therefore worthy of respect, but I very much doubt whether it is possible, excepting perhaps in infants, to reduce by manipulation any rupture in which the hernial impulse is not present. For myself at least I must admit that I have never been able to return with any reasonable application of force a hernia in which I could detect no impulse. This impulse, it is true, may have sometimes been slight, but it was present all the same in the cases where reduction was possible, although it must be admitted that I could not always demonstrate it to my house surgeons in the hospital patients. A large distended hernia universally resonant should be treated with more than usual gentleness, for in such cases the bowel is far more liable to injury than in any other kind, especially if adhesions happen to exist in the sac. Hernial tumours dull on compression, with omental or fluid contents, may be manipulated with greater freedom without much risk of damage being done, but in these reduction is entirely out of the question in the absence of impulse, the utility therefore of persistence in the attempt at all under these circumstances is not plain. Every case of apparently strangulated hernia must necessarily be treated upon its individual merits, but, for my own part, I am sure that, as a general principle, it is better in herniæ which are obviously strangulated and entirely without impulse to perform herniotomy at once rather than make attempts at reduction by manipulation, because I have no doubt whatever that early herniotomy in fairly competent hands is infinitely less hazardous than an unwise persistence in fruitless attempts at reduction by taxis. If due regard be paid to the patient's welfare, one thing at least is certain, viz., that a strangulated hernia which has once been subjected to taxis should be operated upon at once, and no further manipulation used until after the tumour has been explored and the stricture freely divided.

It must not be imagined that all risk of lacerating the bowel during attempts at its reduction necessarily ends after the sac has been laid open in herniotomy, or indeed in every case after the stricture has been divided, for, although to the best of my knowledge the accident has not occurred under these circumstances in my practice, I have been present at an operation in which a surgeon of experience certainly did produce a laceration in the peritoneal coat of the bowel, whilst attempting to reduce it after the division of the stricture which obviously gave rise to the strangulation. This difficulty sometimes experienced in reducing the hernia after the stricture has been cut is undoubtedly as often as not due to the division being not sufficiently free, the little nick so commonly recommended being too slight for securing the necessary relaxation of the constricting band. I am sure, from my own observation, that harm is more often likely to arise from too slight a division of the stricture than from one which is too free. Free division of the parts about the neck of the hernia as a rule entirely obviates any chance of injury to the gut, whilst the possible anatomical dangers entailed in this free incision have been, I have no hesitation in saying, unduly exaggerated.

Although I make a practice of dividing the stricture freely, I have never had the slightest cause to regret it, and certainly have never seen any hemorrhage which has given the least anxiety under these circumstances. The only case in which I had any trouble whatever on account of bleeding after herniotomy was a strangulated umbilical hernia, in which alarming hemorrhage took place into the abdominal cavity from a torn omental vein. This vessel was almost certainly burst by the force which was necessary for the return of the hernia through a ring which had been only slightly divided; had the division been altogether more free the hernia could have been reduced without any force and the vessel would, I believe, have undoubtedly remained intact.—*The Lancet*, August 20, 1892, p. 413.

65.—NOTES OF A CASE OF EXCISION OF THE RECTUM BY THE SACRAL ROUTE.

By W. H. Brown, F.R.C.S.I., Surgeon to the Leeds Infirmary.

Excision of the rectum for malignant disease has (with a few exceptions) hitherto been confined to growth affecting only the anus and that portion of the bowel within reach of a perineal wound. In that class of case where the disease has commenced high up perineal proctectomy is not possible, and the palliative colotomy was until very recently the only means of affording relief to the distress caused by rectal cancer. Kraske described a means of reaching the diseased bowel from behind, and it was after reading his account I was led to make the following attempt which, based on his idea, differs somewhat widely in method of procedure. The patient, a robust, healthy-looking man, aged fifty-two years, had all the ordinary symptoms of cancer of the rectum, and was loosing blood very freely each time the bowel acted. Upon examination the growth could be reached, but it was situated too high up to allow of an ordinary proctectomy. The bowel was, however, freely movable within the pelvis, and the finger could, though with difficulty, be passed beyond the disease. A left lumbar colotomy was first performed, and the patient returned home for a month prior to the major proceeding of excising the rectum being carried out. Five weeks later, the artificial anus being well established and acting freely, the lower segment of the intestine—*i. e.*, between the colon opening and the anus—was thoroughly washed out with large quantities of carbolic lotion (1 in 80) twice daily until the washings were quite free from fæcal taint; this was repeated on the two days preceding operation, and again just before the anæsthetic was administered. After ether had been given, a No. 12 silver catheter was passed into the bladder and held in position throughout the whole of the subsequent operation. The patient was then turned well over on to the right side and the thighs flexed upon the abdomen. A square flap, four inches in length and four in width, was raised from the posterior surface of the sacrum, the free edge being two inches above the anus and the attached border being opposite the third piece of the sacrum. This flap, which included in its thickness all the tissues down to the bone, was turned *upwards*. The sacrum was then sawn transversely across at the level of the fourth vertebra, the lateral attachments below as far as the tip of the coccyx severed, and this bone "flap" turned *downwards*. Hemorrhage was very free, but was easily controlled by a "clip" forceps and sponge pressure, a few larger vessels being tied. The finger was next passed through the anus well up into the rectum, and the gut gradually freed by means of scissors

from its attachments. There was again smart bleeding, but it was easily restrained. On attempting to draw the bowel out of the wound, it was found that the disease extended higher than the level of the cut edge of the sacrum. A further portion of that bone (three quarters of an inch) was therefore removed altogether. This gave the required space. The rectum was then divided just above the internal sphincter and drawn out of the wound, and slit up the posterior surface, the cut extending well above the upper limits of the growth. This posterior incision allowed of the rectum being opened out, and gave a clear view of the extent of the disease, enabling the removal to be undertaken with precision and deliberation. The bowel was now seized above the level of the growth with large pedicle forceps and cut away with scissors, the line of removal being half an inch above the upper limit of the disease. A few vessels in the bowel require ligature. The free end of the rectum was stitched into the upper angle of the wound, and plugged with a large sponge to prevent possible fouling of the cavity. All remaining bleeding points were then tied and the wound well filled with iodoform and gauze, after free irrigation with hot antiseptic lotion (perchloride 1 in 2000). The sacrum was then replaced and the skin flap turned down, and, free drainage being provided for, secured with a few points of suture. No enlarged glands were detected. The wound was dressed with dry wool, and firm pressure exerted by means of a bowel flannel roller. There was little shock; apparently the peritoneal cavity was not opened. A few days after the operation the opening in the colon ceased to act, this being due to the "drag" made upon the bowel, causing the "spur" to disappear. The result was that fæcal matter passed downwards into the rectum, and, in spite of most careful and repeated dressings, the wound became foul, and the patient showed signs of septic poisoning. The wound in the bowel was therefore reopened, and the colon drawn out and divided. This effectually prevented any further fæcal escape into the rectum. In a future case I would deal with the colon in this way, instead of again trusting to an ordinary colotomy. Beyond the accident the after-history is not important. The wounds healed slowly, taking some days to recover from the disturbance caused by the exposure to fæcal matter. The patient required the catheter so long as he was kept on his side, but passed urine without assistance as soon as he was allowed out of bed. His general health was well maintained, and he suffered but little pain.

Remarks.—As the operation constitutes a new departure in dealing with rectal cancer, I have described at length the method I adopted which, though based on the operation described by Kraske, still differs materially in many points. After reading Kraske's description of his operation and, further, the case related by Dr. John C. Davie, it struck me that the incisions there mentioned might hamper one in manipulation, especially if the growth should be higher up in the bowel than at first diagnosed. I therefore made some experiments on the cadaver and decided on the incision I have described, as giving greater space without involving the sacrifice of any important structure. Again, basing my action on the same experiment, I divided the sacrum transversely; this enabled me to get a clear view of the cavity. I was much struck by the extremely close relationship between the rectum, bladder, and urethra, and felt that one of the main difficulties to be avoided was wounding either of the latter. This led me to have a silver catheter kept in the bladder throughout the operation. Though this is not mentioned in either of the accounts I have quoted, I am sure it is necessary to enable the operator to avoid calamity whilst stripping off the rectum from the front.

I found it by no means easy to define—when aided only by the finger in the rectum—the proper height at which to divide the bowel. I therefore slit up the rectum ; this gave me a full and complete view of the area of disease, without in any way adding to the hemorrhage or fouling the wound. This—which to me was a great help—does not appear to have been thought necessary in the previously recorded cases. The remainder of the steps of the operation were conducted on the ordinary principles employed in dealing with large open cavities. The operation is still on its trial. It seems, as far as can be judged from the few instances recorded, to afford opportunity of dealing with the particular form of cancer at least as successfully as many other recognised operations. It is also superior to the ordinary proctectomy in that it allows of a wider removal. I am, however, sure that it can only safely be employed in those cases of rectal cancer which are seen and diagnosed at an early stage, and should never be undertaken unless the limits of the disease can be clearly defined, and when the bowel is felt to be freely movable. It does not seem to be likely that it will ever be practicable to restore the continuity of the rectum with the sphincter after extensive removal, as the attempt would involve great tension, too great to permit of rapid union. The opening made into the pelvis is large, but its very size, I think, enhances the safety of the operation, for it permits of all parts involved being fully in view, and enables the needful dissection to be undertaken with precision, and further, all bleeding points are well under control. Again, thorough drainage can be secured with certainty. In a smaller wound these difficulties and dangers would be less easy to overcome. It is certain that, should the operation be further tried, many variations and improvements will be suggested. For the present I offer this single experience, and I have endeavoured to point out the difficulties as they occurred to me.—*The Lancet*, June 4, 1892, p. 1235.

66.—THE TREATMENT OF IMPERFORATE ANUS.

By Harrison Cripps, F.R.C.S., Assistant Surgeon to St. Bartholomew's Hospital.

[Mr. Cripps's paper contains the narrative of five cases of imperforate anus, in which operative treatment was successfully undertaken.]

Malformation of the anal outlet is rare, and does not occur more than once in every three thousand births. The rarity of the occurrence is doubtless the reason why these cases are often so inefficiently dealt with, practitioners lacking the experience of the best manner of treating them. Indeed, a doubt is present in the minds of some as to whether any attempt should be made to deal surgically with the condition, on the ground that, even if immediately successful, a life of subsequent suffering from a contracted anus is to be expected. In a large number of cases there is no justification for this unfavourable prognosis. By an operation relief to the immediate symptoms can certainly be obtained, and it is possible that a complete and permanent cure may be effected.

Some years ago I published a paper on this subject in the *St. Bartholomew's Hospital Reports*, and there collected the subsequent histories of several cases that had been operated on from ten to twenty years previously. Many of these were practically cured.

Verneuil, to whom I wrote about a case that he had operated on in 1863, replied as follows: "The patient is now a fine young fellow of seventeen years, bearing no trace of the operation, nor has he ever experienced the slightest functional trouble."

In another case, Berrut, of Marseilles, who had operated on an infant girl in 1860, kindly supplied me with the following information :—

"The infant on whom I operated is now *une grande demoiselle*, twenty years old, very intelligent, and enjoying excellent health. She was much troubled with diarrhœa until seven years old. Since the age of fourteen the rectal functions have been normal. The bowels are opened naturally once a day, the stools being healthy."

There are many varieties of imperforate anus, but I propose now to deal only with the two commoner forms ; the first in the male, where there is no trace of an anus at all, or where it terminates in a *cul-de-sac* a short distance from the surface ; the second in the female, where there is no anus, a small aperture existing in the posterior wall of the vagina communicating with the bowel.

Treatment of the first variety.—It may so happen that the rectum terminates close to the surface, in which case a simple incision is all that is required. Generally, however, the blind end of the bowel is some distance from the anus ; in fact, well within the abdominal cavity. In these cases the position of the bowel and its relation to the peritoneum require careful consideration, the want of which is the chief cause of death after operating. I have shown specimens myself at the Pathological Society, and similar ones are to be seen in most museums demonstrating this termination of the rectum within the abdominal cavity. The peritoneum is not merely reflected over the anterior surface of the bowel, as usually but erroneously figured in diagrams, but it is continued right over the blind end of the rectum, the reflection taking place close to the sacrum. This disposition of the peritoneum explains why a fatal peritonitis so frequently follows a blind puncture with the trocar. The trocar, after perforating the superficial tissues, passes through the double layer of peritoneum reflected round the end of the rectum.

On the withdrawal of the trocar, meconium will almost certainly become extravasated into the abdominal cavity, with a fatal result.

To operate successfully the infant must be placed in the lithotomy position, and an incision made in the middle line over the site of the anus to the tip of the coccyx. Structure thus divided are pulled well apart by means of a silk thread passed deeply through the tissues on either side. A good view is thus obtained, and the dissection should be carried upwards, keeping close to the curve of the sacrum. In this way the bowel may often be safely reached without opening the peritoneum. In many cases, however, this would be impracticable, and the membrane would have to be opened. Little harm seems to arise from this if care be taken to draw the bowel downwards as far as possible through the peritoneal aperture, and then stitching the parietal peritoneum to its surface just above the spot where the opening is to be made. In theory, this stitching should be done before the bowel itself is incised, but in practice it may be impossible to get the bowel downwards whilst distended with meconium. In one of my cases I was able by means of pressure forceps to draw the rectal *cul-de-sac* firmly against the peritoneal opening, and then, after incising the distended bowel, and washing out a considerable amount of meconium, I could with comparative ease draw it farther downwards and stitch it to the cutaneous margin. If there is any tension the cutaneous stitches are sure to give way in a few days, and the bowel retracts, but their purpose has been served, for by this time the opened peritoneum will have adhered to the surface of the bowel, and thus the general abdominal cavity will be shut off from the wound.

The ultimate success of these cases depends largely on the after-treat-

ment, for, unless the greatest care be taken, the new opening will contract to a mere sinus. The tendency to closure exists for at least a year or two, but a time appears to come when the contraction ceases, the opening remaining permanent without giving further trouble. In order to counteract this tendency to contraction, the infant should wear for some hours daily a vulcanite plug two inches in length, and made slightly conical. The diameter in the middle should be half an inch, and there must be a broad flange at its base to prevent it slipping in. It is not possible to say exactly how long this should be worn. In one of my cases it was attempted to leave it off at the end of the year, but marked contraction ensued. It was left off again at the end of the second year, since which time it has been discontinued without further contraction.

I have not yet operated on a case in which the bowel could not be found *in situ*. Should such a case occur, I would open the abdominal cavity as if for inguinal colotomy, and if after introducing my finger the rectum was discovered too high to be reached from below, I would complete the operation of colotomy.

Treatment of the second variety.—Two of my cases were examples of the bowel terminating by a fistulous opening in the posterior wall of the vagina, there being no anal *cul-de-sac*. This is generally the condition of malformation found in the female. If the opening be sufficiently large to give relief to the meconium, the operation may be deferred till by the growth of the child the parts are more developed. The operation here consists in passing a strong bent probe from the vagina through the fistula into the rectum. There is generally a pouch of the rectum extending below the opening, and it can in this manner be made prominent and cut down upon by an incision between the vagina and coccyx, and then opened and stitched to the skin. It seems advisable at this stage to make no attempt to close the fistula. At a subsequent period, when the natural outlet is well established, should the fistula give trouble it might be closed.—*British Medical Journal*, June 4, 1892, p. 1187.

ORGANS OF URINE AND GENERATION.

67.—SALOL IN THE TREATMENT OF CHRONIC CYSTITIS.

By E. Mansel Sympson, M.D., Surgeon to the Lincoln County Hospital.

Almost all the causes of cystitis—the presence of stone, operations for removal of same, gonorrhœa, chill, retention, and consequent atony of the bladder, infection from catheterisation and others—produce one general effect, an ammoniacal fermentation in the urine, the urea being converted into carbonate of ammonium. This irritates the mucous membrane of the bladder into pouring forth abundant mucus, which itself is believed to induce fermentation of the urine, and so a vicious circle is set up.

After all surgical means of relieving the cause of the cystitis have been taken or while they are being carried on, there is a large amount of work left open for more purely medical accomplishment. Given, for instance, that the stone has been removed, the retention relieved, etc., the bladder may be in a state of atony, unable to completely expel its contents, which very rapidly become ammoniacal and purulent.

A great deal of relief can indeed be afforded by washing out the bladder several times a day with solution of boric acid (the most generally serviceable and the least irritating of all drugs for this purpose) or of

other antiseptics. This process alone will do much in removing the ropy mucus which itself often hinders micturition, the ammoniacal and foul smelling alkaline urine, and the pus formed in the bladder.

But it will be evident that washing out the bladder is only of temporary service, unless it be done about every hour of the twenty-four; any drug given by the mouth, which, excreted by the kidneys, would make the urine acid, and prevent its fermentation and the formation of pus and mucus, would be a most valuable help in treatment. Until recently I have used benzoate of ammonium with infusion of bearberry in these cases, and it has given fair results. The urine would, somewhat tardily, become acid, clear, and free from any offensive smell or muco-purulent deposit.

But, as it seemed to do little or no good in one or two of my cases, I turned to salol, and the great advantages of the latter are very striking. Salol is much quicker in its action on the urine; within a day or two in ordinary cases, the urine loses its foul smell, its alkalinity, and becomes clear. Also it has seemed to me that the bladder regained its power of complete evacuation sooner where salol was used than in my other cases. And, as salol passes practically unaltered through the stomach (to be split up by the pancreatic juice in the duodenum), it does not disorder the digestion and it is comfortably taken *per os*, a matter of importance of these cases of cystitis, which are frequently attended by nausea and vomiting, and although in other cases salol gives rise to dark urine, from the phenyl part of it, this, curiously enough, did not occur in my cases of cystitis till a day or two before the drug was discontinued.

By using salol, as Dr. Lauder Brunton says of the use of copaiba in inflammation of the bladder, "the whole urinary passages from the glomeruli of the kidney to the orifice of the urethra are thus washed out by antiseptic urine" (containing carbolic and salicylic acids, the products of decomposition of salol in the intestine), "which does not decompose, and which tends to destroy or remove any germs that may be present."

Other observers have noticed the beneficial action of salol in gonorrhœa and genito-urinary troubles, and it seems likely to be most valuable in preventing the spread of infection upwards from the bladder along the ureters to the kidney, and so diminishing greatly the risk of "surgical kidney." Also, it will be found useful as a preventive of rigours from catheterisation and the so-called "catheter fever," and might be given before any operation in or on the bladder. But there are undoubtedly cases whese salol produces grave symptoms of collapse, and these are, as far as I have seen at present, those wherein the kidneys have been extensively damaged before the cystitis occurred. They really are cases of carbolic acid poisoning, due to the non-elimination of the drug by the kidneys.

One case may be quoted as a fair sample of several, and it is more instructive than the rest, as benzoate of ammonium was given for eight days and in increasing doses before the salol was administered. On the second occasion of the patient being treated for cystitis (which apparently was due to chill), he was given benzoate of ammonium and afterwards boric acid, which relieved him a little but made him sick. On turning again to salol he made a rapid recovery as on the former occasion. In another serious case of cystitis, due to retention and consequent atony of the bladder, the water was dark red at first, very foul smelling, turbid, strongly ammoniacal, and full of mucus. In four days, under the influence of salol, the urine was clear, acid, and healthy in every respect.

Unfortunately salol is not soluble in water, so I have always given it in the following mixture:—℞ Salol ʒij. Pulv. Acaciæ Gummi q.s. Aq.

Cinnamomi ad ℥ xij. Ft. mistura. Signa: ℥ ss 4tis hortis vel sextis p.r.n.—*The Practitioner*, June, 1892, p. 427.

68.—ON THE COMPLETE ABANDONMENT OF THE OPERATIONS FOR REMOVING ENTIRE CALCULI FROM THE BLADDER.

By Surgeon-Major J. Forbes Keith, Civil Surgeon to the Hospital, Hyderabad, Sindh.

I think it is my duty to lay before the profession a report on the complete abandonment of the operation for removing calculi entire from the bladder, and the methods employed instead, in the Civil Hospital under my charge.

As a preliminary observation, I may remark that my experiences in this branch of surgery are, as far as I am aware, unique. In the course of the three years I have held this appointment I have operated 739 times for stone. In the month of May, 1891, I performed 50 operations for stone—37 lithotrities and 13 by the other methods, to be subsequently described—all successful; notwithstanding that the thermometer stood at 104° in the operating theatre, and that the cases operated upon were indiscriminately undertaken as to age, sex, duration of disease, condition of health, or size of stone.

1. *Lithotrity.*—Lithotrity is always performed here when the diameter of the stone is small enough to allow the two screws (male and female) of the largest lithotrite the urethra can readily admit to combine with a hold sufficiently powerful to smash the stone.

After the administration of chloroform, the first step is to thoroughly wash out the rectum with Condy. The bladder itself must also be thoroughly washed out if the urine is any way tainted, as it frequently is in the aged, after which it will be found more tolerant of the auxiliary fluid. When a sufficient quantity of the latter has been introduced, the point of the lithotrite on its first introduction is met by the index finger of the left hand immediately on a plane behind the sphincter ani, and is then guided by the finger through the prostate and into the bladder. The information gained is to me of paramount importance, as my finger in the rectum never loses sight (so to speak) of the relation between the stone and lithotrite in the bladder. Further, the quantity of auxiliary fluid, which is readily detected by its bulging behind the prostate, the position of the stone with its relation to the lithotrite, the amount, character, and position of the *débris*, with its relation to the evacuating catheter, and any *débris* lurking amongst irregularities of the mucous membrane of the bladder or behind an enlarged prostate—all these conditions are readily distinguishable by the finger in the rectum co-operating with the lithotrite or catheter, as the case may be, in the bladder.

I mentioned that lithotrity was performed when the diameter of the stone coincided with the screw of the largest lithotrite the urethra was capable of readily admitting; but although the stone is broken up in the first instance by the largest instrument admissible, a size smaller is preferred to finish the operation.

The aspirator is very rarely used for the purpose of evacuating the *débris* of calculi from the bladder. No surgeon familiar with the numerous manipulations connected with the various stages of this operation can have failed to observe that the expulsive power of the bladder is normally greater than might at first be anticipated.

n the other hand I had certain objections to the aspirator. (1) I observed that after the first movements of aspiration a certain nt of mud is always mixed up in the fluid in the aspirator, and creases indefinitely as aspiration proceeds, and for a longer or er period muddy water is thrown backwards and forwards between spirator and the bladder. I have noticed the fluid so impregnated mud that I could not see the heavier particles falling through it, ould only know I was gaining ground by the general accumulation of *bris* at the bottom of the bulb. Again (2) in old subjects who are ably sufferers more or less from genito-urinary irritation, whose pros-glands and adjacent structures are congested, softened, and some- organically changed—whom you can scarcely touch without exciting rrhage—in them you find that, with the first aspiratory movement. nly mud but (however delicate your manipulations may be) blood is nixed with the fluid in the aspirator. (3) If care be not taken to the evacuating catheter always full of fluid at the moment it is con- d with the aspirator air will, along with the mud and blood, get ied backwards and forwards between aspirator and bladder. (4) ng aspiration I have seen patients wince, even when under chloro- when *débris* was forced against the walls of the bladder; for if it rat- against the catheter, as it may be distinctly heard to do, it must also with an equal amount of force against the vesical walls. This may e the mucous membrane of the bladder and evil results follow.

nwilling to pass blood through the aspirator, if I could avoid it, and hing to counteract the effects of the instrument, I unconsciously d myself using the aspirator as a syringe. It was applied to the eva- ng catheter, its contents gently emptied into the bladder, and the ock shut; after which the aspirator was removed, in order to be re- , and used again in the same way. Then the water, with large frag- s of *débris*, tinged more or less with blood, would escape, always with , sometimes with considerable violence, from the mouth of the eva- ng catheter. By a few repetitions of this process, I found that I not got rid of the anxiety of having the aspirator contaminated with d, but also of the to-and-fro movement between the bladder and spirator of *débris*, blood, and air, and that the evacuation of the *débris* the bladder was as effectually performed as if I had been working the aspirator itself.

continued to use the syringe for some time, and then an apparatus contrived which was very simple but at the same time very effective. t the other end from the eye of the evacuating catheter and on its op- e side another opening is made close up at its mouth, similar to the or like the hole of a flute, which can be closed by the finger or thumb, ay be found convenient. This evacuating catheter is then attached e end of a long piece of indiarubber tubing, which by its other end nnected with a little pipe or tube which issues from the bottom of an erosene oil tin case partially filled with boracic acid lotion of the er strength. This simple apparatus forms a complete substitute for spirator in urethral lithotrity. When the stone is crushed and ready evacuation the catheter is oiled and introduced into the bladder, an tant in the meantime pinching the indiarubber tubing between his r and thumb to keep the water from flowing out of the catheter while being introduced. When the catheter is in the bladder the operator s the flute-like opening with his thumb or forefinger, and the assistant ltaneously sets the indiarubber tubing free. Fluid flows into the der for a short period, and then stops of itself, as can be easily seen

by a glass indicator which is attached to the apparatus. Directly the fluid stops, the operator with a simultaneous movement opens the flute-like eye in the catheter and pinches the indiarubber tubing. Fluid and *débris* issue with violence sometimes, always with sufficient force, from the flute-like opening.

On repetition of this process for a few times the *débris* of most stone is rapidly evacuated. In children, where the *débris* must be reduced to finely divided powder or mud before it can get through the eyes or canulæ of such small catheters, evacuation of the *débris* can be effected by merely letting the water fall out of the syringe into the mouth of the evacuating catheter without in any way connecting them, and the reflex action of the bladder thus excited will at once cause the evacuation of the *débris*. With the irrigation stopcock made by Joseph Leiter, of Vienna (which can be opened and shut by a backward and forward movement of the thumb), attached to the indiarubber tubing instead of the evacuating catheter itself, a permanently going syringe can be held in the hand, and its nozzle can be connected with, or withdrawn from, the evacuating catheter at pleasure.

2. *Perineal Lithotrity.*—When the diameter of the stone is too large for the screw of the largest lithotrite the urethra can readily admit, then recourse is had to a perineal lithotrity.

The operation is performed by me as follows: Introduce a grooved staff into the bladder in the ordinary way in operations for stone, then take a sharp-pointed narrow-bladed knife, and holding the staff up against the angle of the pubes, with the left hand firmly resting on the patient, insert its point at the angle formed by the root of the penis with the perineum, and push it upwards and slightly backwards into the groove of the staff, making slight forward and backward movements to make sure of being in it, and keep it there. A small director is then to be pushed alongside the knife into the groove of the staff, making with it also some decided backward and forward movements to make sure it is in the groove of the staff, then, having removed the knife, the director is pushed home into the bladder and the staff withdrawn. Thus far there is no difficulty. That the director has entered the bladder is known in two ways. As a rule the stone can be felt and urine escapes from the wound.

It should now be ascertained whether that lithotrite will enter the wound whose screw coincides with the diameter of the stone, the size of which can be most accurately determined by previously measuring it by means of a lithotrite which the urethra can readily admit. If the wound in the skin and the membranous portion of the urethra is not large enough to readily admit this lithotrite, a probe-pointed knife must be introduced into the groove of the director, and the wound slightly enlarged. Having fitted the wound for the lithotrite, its point is to be gently introduced along the groove of the director with the handle downwards. When the jaws of the instrument have been completely introduced into the wound by simultaneous movements the director is withdrawn and the lithotrite moved upwards to the perpendicular by a sweeping motion to the right gently push it into the bladder.

If, by some accident, the director falls out of the wound and its walls collapse, the best way out of the difficulty is to introduce the staff again and the director may be got into its groove and so into the bladder; if not another incision must be made, which is bad practice, although I never yet saw any untoward circumstance occur attributable to this contingency. The knife is not to be pushed along the groove of the director in the direction of the bladder; if this be done, the prostate will be in danger

of being wounded, and the great aim of the operation will be lost, its end and design being to preserve both the structure and the function of the prostate gland intact. There is, as a general rule, no blood lost after the introduction of the lithotrite, and after it has begun to work, for the wound is in all cases exceedingly small; it is in the mesial line, and only capillary vessels are cut. The *débris* is removed in the ordinary way by the excavating catheter and aspirator. In this method the aspirator is necessary as the catheter remains more or less in the horizontal position during aspiration.

Urethral and perineal lithotrity dispose not only of all stones whose diameters coincide with the screws of the largest lithotrites that can be readily introduced through the urethra into the bladder, but also of all stones, except very hard ones that lithotrites cannot crush, whose diameters coincide with the screws of any lithotrite made, and yet preserve in their integrity the structure and function of the prostrate gland.

By the perineal operation I have successfully removed the largest stones, whose diameters coincide with the length of the screws of the largest lithotrites that can enter the urethra, and firm in the impression that lithotrites of much larger dimensions could be introduced into the bladder without injuring the prostatic portion of the canal after division of the membranous portion, and that this operation could be extended to yet much larger stones without in any way endangering its chief object. I ordered a perineal lithotrite from Messrs. Coxeter and Son which is two sizes larger than the largest lithotrite the urethra can admit, together with a catheter corresponding in size. I have successfully commenced operations with this one, but I believe, as the calibre of the prostatic portion of the canal differs in size in different individuals, I shall require a series of perineal lithotrites and excavating catheters to perfect the parallel between perineal and urethral lithotrity. This problem will have to be solved by future experience.—*British Medical Journal*, June 11, 1892, p. 1246.

69.—ON SUPRAPUBIC PROSTATECTOMY.

By C. W. Mansell Moullin, F.R.C.S., Professor of Surgery and Pathology in the Royal College of Surgeons of England, etc.

[The following is an abstract of Mr. Mansell Moullin's third lecture on the operative treatment of enlargement of the prostate.]

The earliest record of McGill's operation, or suprapubic prostatectomy, is in the year 1826, when Amussat is stated to have excised a valvular median lobe during the performance of lithotomy. As, however, I have not been able to ascertain any particulars with regard to the result, I have merely retained the case for its interest, and have not included it with the rest. Of these, the two first were performed by Dittel in February, 1885, and February, 1886, respectively. Trendelenburg came next in May, 1886, and Belfield in the following month. Then Benno Schmidt in August of the same year, and Belfield, Trendelenburg, and Benno Schmidt again. McGill's first was in March, 1887. After this, and as a result of his communications to the Clinical Society and to the British Medical Association in August, 1889, the operation was performed much more frequently.

Thanks to the kindness of the many surgeons to whom I have written, and to whom I owe a deep debt of gratitude for the trouble they have taken and the valuable information they have given me, I have been able to collect particulars of ninety-four cases. Of these, nineteen have died,

upwards of 20 per cent.; but it is worth noting that, while twelve deaths occurred in the first half, there were only seven in the second. One of the fatal cases, it is believed, was due to corrosive sublimate poisoning. In a second the operation was of an unusually extensive character, involving resection of the pubic symphysis. A third, who was eighty years of age, died suddenly on the fourth day from what is called acute irritative urinary fever, the temperature rising rapidly to 106° F. without any apparent reason. Three died from pneumonia or purulent bronchitis, one from hemorrhage, and the rest from exhaustion or pyelonephritis. With wider experience, it is not unlikely that the mortality will be much further reduced.

The percentage of failure is more difficult to estimate, as many cases in which complete control over the bladder was never regained certainly do not deserve to be included in the list. In one, for example, complete recovery followed the perineal operation, performed a month or two later; the division of the obstruction had not been carried sufficiently far. In another, a man aged eight-seven, no attempt was made to close the suprapubic wound; but at the present time, four years after the operation, he is, so I am informed by Mr. Buckston Browne, going about still, thoroughly enjoying his life. In a third there was already a fistula consequent on the previous removal of a vesical tumour, and in several others there were reasons for which some allowance must be made; but this is better considered later, with the conditions that render operations advisable.

As regards the *technique* of the operation there is but little variety. Trendelenburg is in favour of a transverse incision through the soft parts, which may be advisable in the case of a pendulous abdomen following the fold over the pubes, but does not really give more room, and certainly predisposes to hernia. Helferich, as already mentioned, resected the pubic symphysis with the same object. According to McGill, enucleation of the growth, after the mucous membrane over it has been divided, is the most satisfactory method. Others have employed the cautery or *écraseur*, and Keyes makes use of what he terms a "*rongeur*" to cut a channel through the obstruction. Bleeding rarely appears to be serious, although in one case it was directly fatal, and in another it probably contributed largely to the result.

The amount removed must depend in each case upon what is revealed by the exploration. In two McGill was only able to remove a fragment the size of a pea; on the other hand, Buckston Browne, in the case already mentioned, excised no less than four ounces by weight. Certainly, if the result is to be successful, the whole vesical portion must be enucleated, a low level channel cut through, and, unless the tissues around the neck of the bladder are perfectly soft and flexible, a smooth and straight route made down the urethra. Belfield lays especial stress upon the thorough exploration of the urethra with the finger. In one of his cases, after removing a tumour the size of a walnut from the left lateral lobe through a suprapubic incision he found that there was still some obstruction in the prostatic urethra, preventing the entrance of a catheter. Perineal urethrotomy was performed, an incision made along the floor, and a rounded mass shelled out into the bladder. There is no doubt, moreover, that one of the earlier cases (Meinhardt Schmidt's) failed from this not having been done, as the bladder recovered completely after perineal prostatotomy, and the patient was perfectly well two years and a half afterwards.

Trendelenburg, Helferich, and others have made use of the cautery

instead of a separate perineal incision, sinking it deeply into the tissue of the prostate in the middle line behind; but, as Belfield points out, the addition of the *boutonnière* increases but slightly the injury to the tissues and the duration of anæsthesia, while it enables the operator to feel much more accurately what he is doing. It may also be pointed out that it is of great assistance afterwards in draining the bladder. It is true that after suprapubic lithotomy all the urine will come out through a tube inserted in the wound; but this only holds good so long as the operation is confined to the bladder; the prostatic portion of the urethra cannot drain itself in this way, and when the operation has extended into it, unless a perineal opening is made, it becomes a conical receptable at the lowest part of the wound filled with decomposing blood and urine.

The lateral lobes are quite as important as the median, and require to be dealt with as thoroughly. McGill recommended removing the salient portions with scissors, and then enucleating the rest until a funnel-shaped passage was established. So long as the bladder is of fair capacity this is not so difficult as it might be thought; the greater the size and the more irregular the enlargement the easier enucleation becomes; but unless Helferich's resection of the pubic symphysis—which very seriously increases the gravity of the operation—is performed as well, it is almost impossible if the bladder is small and its walls rigid.

Such are the operations proposed for the radical cure of enlargement of the prostate. Provided suitable methods are selected, there is no doubt with regard to the possibility of removing the obstruction. The first question is whether it will return and render the operation useless; the next, whether the bladder can recover; and then, what is the risk to life.

The question of the recovery of the bladder depends partly upon the condition of the patient as regards general nutrition, partly upon the extent to which the muscular coat has been ruined by overdistension, cystitis, and the repeated use of catheters. Nineteen cases in all failed, but in four of these either the whole obstruction was not removed, or no attempt was made to close the suprapubic opening; in two others there was already a fistula owing to the previous removal of a vesical tumour, and another was a very feeble old man who became insane shortly after. These, at least, must be deducted, and in several others there were mitigating circumstances. It cannot, however, be too plainly stated that the real reason why the bladder had failed was that the operation was performed too late. Sir H. Thompson has written that habitual catheterism for retention in cases of enlarged prostate for two years will permanently destroy the power of the bladder to empty itself; and although McGill has shown that this is by no means so invariable or so positive, it is certainly one of the strongest arguments in favour of early operation that the chief palliative measure that replaces it may within two years—*will* according to Sir. H. Thompson—so ruin the bladder that it can never recover.

The final question is whether the operation does not involve too great a risk to life, and how far it will compare in this and in the degree of comfort it confers with palliative measures, such as suprapubic and perineal drainage. For it has been said that nearly the whole benefit derived from it is due to the temporary relief from cystitis or to the extraction of calculi, and not in more than the remotest degree to the removal of the obstructing mass. In answering this the perineal operation must be considered separately from the suprapubic. It is not a matter of option which of the two should be performed; one may be required, or the other, or both; and fortunately in the majority of instances it is fairly easy to tell beforehand which should be selected. Even, however, if owing to some

misleading feature there does happen to be a mistake in the diagnosis, and the perineal operation is performed in a case better suited to the other, exploration with the finger can do no harm, and the presence of the incision, supposing it is not wanted for drainage, adds little or nothing to the gravity of the operation.

Of the thirty-eight cases of perineal operation undertaken for this purpose, and not as an afterthought during lithotomy, only three died, and one of these was eighty years of age already, and in another the method adopted was unsuitable. Simple division, I grant, is not of much value unless followed by prolonged drainage ; but undoubtedly in suitable cases perineal prostatectomy, without necessitating an appreciably greater risk, confers upon the patient a degree of relief with which that following mere cystotomy or drainage offers no comparison. The patient, in a large proportion of cases, recovers complete control over his bladder, and even in the failures, even in those instances in which a fistula is left or in which the sole benefit gained is the easier introduction of a catheter, he is no worse off than if the formation of a permanent fistulous opening and nothing more had been the object in view.

The suprapubic operation stands on different ground. Taking all the cases together, the mortality is approximately twenty per cent. ; if the last half only it is still fifteen per cent. ; and although this will fall lower, especially in the hands of those who are practised in the performance of the operation, it is probable that it will always remain higher than the other. On the other hand, it must be remembered that the majority of patients operated upon were practically *in extremis*, and that it is very doubtful whether a very large proportion would have survived much longer or even so long, had the operation not been done.

The real issue lies between suprapubic prostatectomy and the continuous wearing of a canula, which, in spite of the enthusiastic comments of those who were suffering tortures before it was introduced, is scarcely preferable to micturition by the natural route. Each has, I believe, distinctly its own field. Enlargement of the prostate by itself requires neither, and fortunately the majority of patients suffering from this complaint pass through life without its ever becoming necessary to raise the question. In a certain proportion, however, complications set in sooner or later ; and to many patients there comes at length a time when their constitutions are still sound, but there are clear indications that the local conditions are surely and rapidly growing worse. The catheter has to be passed more and more often ; occasionally there is a little difficulty, and, what is still more important, it no longer gives relief—the desire to pass water is as great after the instrument is withdrawn as it was before ; cystitis breaks out every now and again ; attacks of congestion causing hæmaturia and retention occur with greater frequency : the urine is becoming offensive ; the residuum is growing larger, and the night's rest is seriously broken. For these and such as these prostatectomy, by one route or the other, according to the special conditions present, certainly affords a far better prospect than either cystotomy or drainage, and without sensibly greater risk. Permanent cure is possible, and even the failures are as successful as the successes claimed for the other methods.

On the other hand, if this chance is lost, if, as only too often happens, the patient has allowed himself to drift on, using a catheter more and more frequently without realizing what the end must be, until his kidneys are diseased or cystitis has destroyed the muscular power of the bladder and made it small, hard, and rigid, the conditions are absolutely different. When the capacity of the bladder is much reduced, and it cannot be dis-

tended ; when it has lost its power, whether this arises from prolonged retention, repeated inflammation, or the persistent use of catheters, and when, under careful treatment and watching, it shows no sign of recovery, it is useless attempting to remove the obstruction ; cure is impossible, and the risk, if there is the least nephritis, much too great. Palliative measures only can be employed ; as much benefit can be derived from drainage as from the most complete enucleation ; and no surgeon would undertake a grave operation when one less dangerous to life would answer equally well.—*British Medical Journal*, June 18, 1892, p. 1294.

70.—ON PERINEAL DRAINAGE IN SUPRAPUBIC LITHOTOMY.

By H. Herbert, F.R.C.S., Surgeon Indian Medical Service.

Very little reference is made in British textbooks to this mode of drainage in suprapubic operations, still less to the differentiation of cases requiring it. And for this two reasons are perhaps accountable. First, it is really very seldom needed in civilised countries, where cases of stone usually come under treatment at an early stage. And, secondly, if the drainage by this route is not perfect, it is practically useless. Drainage by the urethra is too uncertain to be employed with any satisfaction. To be perfectly successful, a tube other than the ordinary lithotomy tube or soft catheter must be used. These are liable to blockage either from the falling down of the collapsed bladder wall or by mucus and pus. I found a silver lithotomy tube pierced with two rows of large closely set openings for the terminal 1½ inch of its length sufficient for the purpose. The puncture in the perineum being made after the suprapubic wound, with the left index finger in the prostatic urethra from above as a guide, is one of the simplest of counter-openings, large enough only for the introduction of the tube, and, if kept accurately in the middle line, necessitating the loss of scarcely a drop of blood. True drainage is secured as distinguished from the overflow through the suprapubic wound, which, together with the cavity of the bladder, is kept perfectly clean, and thus absorption from a large raw surface is avoided.

The first time I was led to practice this drainage was purely accidental. The patient was an emaciated Arab, 30 to 40 years old, with a stone (since given to the Leeds Museum) over 10 ozs. in weight, largely phosphatic, with alkaline urine. Having tied the penis with a tape after the injection of only 4 ozs. of fluid (instead of using the pressure of a column of fluid through a large catheter, as should always be done), the membranous urethra ruptured, and the penis, perineum, and scrotum rapidly filled up. This is an accident which I have not seen recorded elsewhere. The vesical walls were much hypertropied. To relieve this, I made a median puncture at the base of the perineal swelling, extending into the urethra, so that it should be available for bladder drainage afterwards. But it necessarily wounded the bulb, and the consequent loss of blood must have contributed to the ultimate fatal result. For some days soft catheters were used for drainage, and the patient put on his back on an inclined plane. But it was not till the above-mentioned tube was used that we succeeded in keeping the large upper wound dry, and even then it was found advisable to insert a strip of gauze into it as an additional precaution. On the fifth evening the drainage was discontinued, as the one constant position was irksome to the patient. But next morning the usual drop in temperature was absent, and the patient distinctly not so well, so it was

resumed till the ninth evening, when again an attempt was made to dispense with the tube. The patient's temperature had varied between 100° and 103° F., but his tongue was moist and he took nourishment freely. Urine still faintly alkaline. The ill effects of this second change were, however, quite unmistakable, and constitute the strongest argument in favour of perineal drainage. In the night the patient became restless, complaining of pain about the wound; and next morning there was the highest temperature reached—103.6° F.—with headache, pain in the wound, drowsiness, absolutely dry tongue, and almost complete suppression of urine. The patient died in the evening (tenth day). The feeble granulation tissue was evidently unable to resist the absorption of poisonous matter from the septic urine.

Shortly after this I removed a mass of six phosphatic calculi, weighing nearly 4 ozs. when dry, by this method, with the perineal puncture, from a man about 40 years of age. The smaller of these calculi were deeply embedded in the prostate and neighbouring part of the trigone, and the pits left could not be perfectly drained. The urine, coming down from the renal pelves was very foul, and was slow in becoming sweet. Thus there was a high temperature for five days, but the large wound being kept perfectly clean rapidly contracted, and the patient did well.

Shortly after this again I performed suprapubic lithotomy on a man 55 to 60 years old. Though the urine was stinking, specific gravity 1007, average 44 ozs. daily, the stone was little more than one ounce in weight, and had but a thin coating of phosphates upon it, and was very easily and quickly removed. Thinking this such a favourable case as not to need special drainage, it was simply treated in the ordinary way by frequent washing out from above and no perineal opening. But the wound became sloughy, and after a week collapse with hiccough and a falling temperature gradually set in, and the man died on the eleventh day with a temperature of 96° F. After death a small retropubic abscess was found shut off from the sloughy wound, and the kidneys extensively sacculated.

I feel certain that perineal drainage would have saved this patient, and am persuaded that the two chief causes of death after suprapubic cystotomies, suppurative nephritis, and retropubic abscess, as illustrated in these cases, should be generally eliminated by this measure properly carried out. These are the only "high operations" I have done in adults with foul alkaline urine and disorganised kidneys. In children special drainage is perhaps never needed, and in adults the probable state of the kidneys, as far as can be judged from the urine, the size and character of the stone, and from general conditions, seems to be the main consideration in its employment, though it is quite questionable whether it might not prove an advantage in all cases where the urine is stinking and alkaline.—*British Medical Journal*, April 2, 1892, p. 707.

AFFECTIONS OF THE SKIN, etc.

71.—ON FAVUS AND ITS TREATMENT.

By Sheldon Guthrie Evans, M.D., U.S. Navy.

Though favus or tinea favosa is an exceedingly rare disease in our own country, it is by no means uncommon in Scotland; and in Germany, where it is known as Wachsgrind, it is of frequent occurrence. I have been fortunate—or unfortunate—enough, within the past few months, to have

been brought in close professional contact with one hundred and thirty-nine patients suffering from this disease, all of whom were under the general supervision of Surgeon Abel F. Price, U.S. Navy, the senior medical officer of the ship, and to whom I am indebted for the treatment about to be described. With very few exceptions all the cases aboard ship occurred among the apprentice boys, and did not generally extend to the men.

Favus usually attacks the hairy scalp, and in the cases that came under my care all were of this character; and it may be well to state, *en passant*, that it appears to be more severe with those who have light-coloured hair than with those possessed of locks of a darker hue. It is a contagious parasitic disease, and Schönlein who was the first to demonstrate that the straw-coloured crusts found in the disease, formerly known as porrigo favosa or tinea lupinosa, and which were regarded as the products of inflammation, really consisted of a mass of fungi (achorion Schönleinii).

Microscopically examined, the favi, as the yellowish crusts are called, are found to be made up entirely of the fungus, consisting of "an oval nucleated conidia one thirty-five-hundredths of an inch in diameter; free, jointed, or constricted; large, branching, or tortuous mycelial filaments one eight-thousandth of an inch in diameter, filled with granules and spores, and a stroma made up of cellular elements" (Quain).

Hofmann, who has cultivated the fungus, claims that it is identical with the mucor racemosus, but other authorities do not corroborate his views.

Lack of cleanliness seems to be the only predisposing cause of the disease, and dirt a most favourable nidus for the development of the fungi when once implanted. This is, however, by no means true of the cases aboard ship, where the strictest hygienic regulations prevail, and thorough cleanliness, both of person and quarters, is rigidly enforced. The origin of the disease on the ship has been traced to an apprentice boy from Germany, who, when sent to the ship, was evidently suffering from the disease, though it had not fairly manifested itself. From him it appears to have spread to others, mainly through the utensils of the ship's barber, and, perhaps, by changing watch-caps, a practice prevalent among the apprentices. As soon as the first case was detected the crew were at once inspected and other cases found.

The disease is characterised by the development of sulphur-coloured crusts or scales known as favi. In its first stages we find the affected part studded with fine yellow bodies embedded in the skin. These spots or bodies are, at first, about the size of a pin-head, and each body perforated with a hair. Subsequently they coalesce and the scalp is covered with a thick mass of dirty yellowish scales, having a peculiar pungent and characteristic odour. On removal of the scales we find the scalp reddened, inflamed, and depressed. As the hair follicle becomes overgrown with the fungus, the growth of the hair is impeded, and it soon dries up and drops out. It is not generally reproduced.

Favus is often accompanied by lice, but in none of our cases were these pests found. By a casual observer the disease may be mistaken for impetigo, but on close examination the favi are easily recognised, and the odour is strikingly characteristic.

All writers on the subject say that the treatment is tedious and unsatisfactory, but it gives me pleasure to set forth the method suggested by Surgeon Price, which I have been unable to find in any works now at my disposal, and which treatment has given complete satisfaction. The hair of every patient was, of course, cropped short, and kept so during treatment. A solution of bi-chloride of mercury in alcohol—one to five hundred

—was prepared, two stiff brushes provided, and the heads of all the patients were thoroughly scrubbed with the solution every other day for a week or ten days, within which period all the scales were removed, leaving only a yellowish stain upon the scalp. Then a solution of the same strength was prepared with water and glycerine, and the patient's head was bathed therewith twice a week.

Under this treatment all the cases rapidly improved, many have been entirely cured, and none have developed a second attack. If the scalp is very much inflamed and tumefied, a mild sulphur, mercurial, or oxide of zinc ointment will quickly relieve it.

The oil treatment with poultices, etc., would certainly have been tedious, especially with such a number of patients. Should any of the readers of the *Medical Record* meet with any cases and employ the mercuric chloride treatment, I should be pleased to hear the results.—*New York Medical Record*, April 30, 1892, p. 490.

72.—ON THE TREATMENT OF DERMATITIS HERPETIFORMIS.

By GEORGE T. ELLIOTT, M.D., Assistant Physician to the New York Skin and Cancer Hospital.

My experience has certainly demonstrated to me that there is no remedy, drugs, or forms of treatment which exercise any specific influence over the process. On the contrary, the few good results obtained by me have been only in those cases in which there was an opportunity of either removing or of counteracting the ætiological influences which have been at work, and it appears to me that the course of treatment adopted should be based upon that principle. I have not seen any particular benefit derived from dietary changes, from internal remedies, or from the routine administration of alkaline treatment, or nerve sedatives, or tonics, etc., as long as the primary influences operating upon the patient continued. But when the individual was able to go away and be free from all his cares and responsibilities, etc., or all his mental and physical overwork, etc., were replaced by rest and freedom, or the patient was protected in her business and family life from emotions, shocks, etc., or recuperation of the general normal tone was obtained and retained by constant care, then the patients got apparently well—that is, enjoyed entire freedom from the disease, though this freedom lasted only as long as the primary causes were absent; but, as was seen in all of them, the eruption returned in some degree when they came into play. On the other hand, no improvement was seen when the ætiological causes were still in existence, notwithstanding the use of arsenic, atropine, ergot, strychnine, valerianate or phosphide of zinc, potassium salts, mercury, etc., and the hygienic and dietetic and other means employed. From this experience the course of treatment which should therefore be followed ought, in my opinion, to be based upon the broadest principles, and, as far as possible, guided and directed toward removing all of those influences which apparently produced the disease in any given case, and which brought about the recurrence of relapses. If this can be done by appropriate internal treatment, then the remedies indicated should be exhibited, or if it requires change of scene, surroundings, occupation, etc., then recourse should, as far as possible, be had to these. At the same time, any functional or other systemic disturbance should be attended to, and the patient's condition be brought as far as possible up to the normal. In other words, the therapy of every case will have to be based upon the indications and conditions existing in each,

and can therefore in no particular be a specific one or consist of any specific.

The external or local treatment is also of great importance and should be combined with the one just mentioned. Its principal object, in my estimation, is to give relief to the subjective discomfort, to remove the lesions already existing, and to prevent septic infection, which, on a surface presenting so many points of entrance as the scratched and torn and denuded skin of a case of dermatitis herpetiformis would occur most easily. I have tried to attain these ends with the tars, carbolic and salicylic acids, camphor, resorcin, menthol, chloral, ol. hyoscyami cocti, etc.; the sulphur treatment recommended by Dr. Dühring has also been used by me; but none gave results in any way commensurate with that obtained from ichthyol, and the majority failed altogether to be of any use. The ichthyol in ointment form did not act as well as when used as a lotion—twenty-five grains to fifty grains in an ounce of water; but the best effects were observed when it was combined with ol. amygdal. dulc. and lime-water; ℞ Ichthyol. ammon., gr. xxx to xl; ol. amygdal. dulc., aq. calcis, āā 3 ss. This was rubbed in thoroughly several times daily and allowed to remain on the surface, or sheet lint saturated in it was wrapped around and retained in place by bandages. The treatment was also combined with frequent baths of starch, or of starch and bicarbonate of sodium, to which, in case there was much hyperidrosis, as was at times observed, a decoction of white-oak bark was added. By these means the patient obtained at least considerable comfort, even though they did not act as distinctly curative agents.—*The New York Medical Journal*, May 28, 1892, p. 599.

13.—ON THE DESTRUCTION OF HAIR BY ELECTROLYSIS.

By JOHN T. BOWEN, M.D., Assistant Physician for Skin Diseases, Massachusetts General Hospital.

It is now fourteen years since Hardaway first employed the electric needle for the destruction of the hair and its papilla, and it remains the only safe and permanent cure for hypertrichosis. It has been proved over and over again, that every hair can be permanently destroyed, granting a liberal supply of time and patience; and failure to succeed can only depend upon an improper performance or lack of experience. While the operation may appear at first glance in the light of a cosmetic refinement simply, any one who has had considerable experience with the subjects who present themselves for treatment will be eager to testify that it is something more. It is almost impossible to exaggerate the mental suffering occasioned in some women of highly sensitive temperament by the presence of a growth of hair upon the face. It is constantly in their thoughts, and in many instances produces so great a degree of sensitiveness, that their health becomes impaired by the degree of seclusion to which they condemn themselves.

In the first place, I do not see how it is possible to lay down any exact rules for the operation. Its proper performance is attained by practice only, and the indications that govern us at a given moment are only to be defined in the broadest possible way. I am convinced that two operators may do the work equally well, while using methods quite dissimilar in their details.

I should be very unwilling to say how long the current should be allowed to pass, or how strong the current should be, as it varies so widely, according to the part of the face operated upon, the size of the hair, and the sensitiveness of the skin. I have never found it necessary to exceed

two milliampères, and rarely to use more than one and one half milliampères. A galvanometer is to me an aid, and I am in the habit of keeping one constantly in the circuit; but I consider it of very trifling importance compared with the aptitude acquired by experience, and am far from regarding it as necessary for the best work. In some cases it is of very little use to me; in others, especially where there are very stout hairs to be removed that requires a relatively strong current, I have thought that it aided me quite sensibly. For a beginner it seems to me a most proper instrument, as much loose work has undoubtedly been done by the inexperienced, and the use of a galvanometer may, in part, supply the place of the judgment acquired by experience. I have tried a battery of high electro-motive force, with a strong resistance in the circuit, as has been recommended, but have abandoned it after a thorough trial. There is a certain amount of shock experienced by the patient, which is not felt when a small electro-motive force is used, and practically I could see no advantage from the greater steadiness of the current.

I am in the habit of using a copper electrode, covered with absorbent cotton. This is either held constantly in the patient's hands, or they are directed to make and break the current after the insertion of the needle. The latter procedure I have found advisable when hairs that are very stout, or in close proximity, are to be destroyed, as a certain amount of unnecessary inflammation may be caused by the needle in trying to find the mouth of the follicle; but in cases where the hairs are far apart and the follicular mouths easily found, it will save time if the electrode be kept constantly in contact with the skin, although the pain is rather added to, the shock being greater when the circuit is broken by the withdrawal of the needle.

With regard to possible marks left by the operation, they are very slight, and I have never caused any that would be noticeable, or were objected to by the patient, so far as I know. In the large majority of cases, the hair may be destroyed without leaving the slightest evidence of the operation. It is my impression that it is better, provided that the necessary patience is granted by the subject, to allow a larger number of hairs to return than is really necessary; for it is often difficult, even after much experience, to determine the exact moment when a given hair has been destroyed. It is better, therefore, to stop before that point has been reached and to remove it at a subsequent sitting, than to run the risk of causing too much destruction of the tissues around. But every dermatologist knows that idiosyncrasy plays its part in scarring, as well as in other pathological conditions. We know, for instance, that in some skins, an acne pustule will leave an indelible mark, while in most others a much greater degree of follicular inflammation will, on subsiding, leave the skin perfectly smooth, and this is true, also, of slight injuries. The negro skin is proverbially disposed to keloidal growths after injuries or inflammation, from some as yet obscure cause. For this reason we may expect in rare instances to encounter subjects whose skin re-acts more vigorously than usual to the violence done by the electric needle, and in them, even with the utmost caution, a slight pitting may result.

The hairs upon the neck are hardest of all to remove, on account of the angle at which they are inserted, and one usually has a larger number of recurrences here than in most localities. It would appear that we must expect a certain small number of hairs to return, requiring a second treatment, even if the operation is most carefully performed. That this is inevitable may be seen from what takes place in the formation of new hair. *It is agreed* by all who have studied the subject, that the new hair is formed

at the lower part of the follicle, before the old hair has become freed from its epithelial connections and cast off. Unna even asserts that the old hair continues to grow for a certain time after the papilla has disappeared and the root has become contracted, obtaining its nourishment through the rete cells of the walls of the follicle to which it adheres. But whether or not this view be the correct one, it will be seen that many of the old hairs not yet detached must be among those that we remove, and that in the same follicle, at a point not likely to be reached by our needle, lie the elements of a new hair which will make its appearance later.

The number of hairs that can be removed at a sitting varies so widely, that it is practically impossible to formulate any rule; and, therefore, one should be very cautious in replying to the inevitable question, How many sittings will be necessary? But it can be said decidedly that every hair can be thoroughly destroyed in the end, and that a successful result in every case is simply a matter of time and patience.

Turning now to the other cutaneous conditions to which electrolysis is applicable, we find ourselves dealing chiefly with hypertrophies and new growths—affections in which we are able to make use of the destructive action caused by the electric needle in a limited area.—*The Boston Medical and Surgical Journal*, July 29, 1892, p. 77.

SYPHILITIC AFFECTIONS.

74.—ON SYPHILITIC JOINT DISEASES.

By J. Hutchison, Jun., F.R.C.S., Assistant Surgeon to the London Hospital.

That syphilis may be the cause of several forms of arthritis is now generally admitted, although the subject has not received that attention which it deserves, and the accounts of it are scattered and mainly to be found in foreign writings. John Hunter, Ricord, and in our own time Von Zeissl, have denied that syphilis has any direct influence in causing diseases of the joints; whilst, on the other hand, Lancereaux, Virchow, Schüller, Richet, Poisin, and Howard Marsh, have brought forward conclusive evidence as to the fairly frequent occurrence of true syphilitic arthritis. The following divisions may be suggested.

1. *Synovitis during the secondary stage.*—This usually occurs within a few months of infection, is of but short duration, is very amenable to mercurial treatment, and clears off leaving no trace behind. It is rarer and of far less importance than the other forms, which all occur during the tertiary stage. 2. Perisynovial gummata. 3. Arthritis due to osseous nodes or gummata in the neighbourhood of the joint. 4. True chronic synovitis. 5. Syphilitic and chondro-arthritis (Virchow).

1. The occurrence of joint pains, and occasionally of synovial effusion, at the time the patient is suffering from secondary skin eruptions, etc., has been a fact known for centuries, and is noted in a Japanese medical work dated 808. As regards the joints chiefly affected by secondary arthralgia or effusion, it is interesting to note that they are in the main the ones which are most commonly involved in the tertiary stage, that is, the knees, elbows, and ankles, though the shoulders, wrists, and some of the smaller joints are not exempt—for instance, the sterno-clavicular articulations and those of the fingers. The effusion is generally only moderate in amount, the overlying skin but little if at all congested, and with the effusion there may be a complete absence of any febrile disturbance. The amount and duration of the pain vary much; as a rule it is much less and disappears

more quickly than that due to gonorrhœal rheumatism. The age of the patients affected with secondary synovitis is usually between 20 and 40 years, though Roch records a typical example in a woman aged 65, who previous to the contraction of syphilis had never suffered from any joint trouble. We have, unfortunately, no evidence as to the pathological changes present in secondary synovitis; it would be a point of great interest to determine whether the articular cartilage, which is the seat of most important changes in some cases of tertiary arthritis, is at all affected.

During the secondary stage effusion into certain bursæ and tendon-sheaths is occasionally met with—for example, around the biceps tendon at the elbow and the extensors of the fingers. In patients the subject of late secondary syphilis the development of small subcutaneous nodules, especially on the extensor aspects of the limbs, has been observed by Dr. Mackenzie, Sir Dyce Duckworth, Mansurrow, and others. They are not unlike the so-called "rheumatic nodules," but occur in patients of more advanced age, and may persist longer unless cured by mercurial treatment.

2. *Perisynovial Gummatous Infiltration.*—With regard to this frequent form two facts come out strongly: the especial liability of the fibrous tissue around the knee, and to a less extent the elbow-joints, to be affected, and its greater prevalence in women than in men. Out of 24 cases of this variety of syphilitic arthritis, the knee-joint was involved in 13. The gummatous deposit is usually attended with moderate effusion into the joint, and may in exceptional cases break down into it, though as a rule this occurs on the cutaneous surface. It is a very chronic condition, and liable to relapse after apparent cure.

It has been mentioned that occasionally the gummata break into the joint. Of this the late Mr. Coulson has recorded a case, and necrosis of the patella has also been observed. The neighbouring bursæ are very liable to be involved, especially those in front of and behind the ligamentum patellæ. Syphilitic disease of the olecranon bursa occasionally occurs, but about the elbow-joint there is a position much more liable (for some obscure reason) to gummatous infiltration than the back of the olecranon, namely, the hollow below the epitrochlea. This fact is of interest from the invasion of the ulnar nerve, the neuritis set up being shown by lancinating pains along the course of the nerve, with partial anæsthesia of the two inner fingers, etc.

As regards the diagnosis, the patient's age (usually in mid-adult life), the rounded ulcers or scars—the latter being either deeply pigmented or white and supple like thin parchment—will usually point to the syphilitic natare of the disease, apart from the patient's history, and distinguish it from tuberculous infiltration. If the process be allowed to go on for long some contraction and stiffness of the joint is likely to result; and owing to the comparative absence of pain in some cases the patient may defer coming under treatment for a considerable period, and render the disease correspondingly troublesome to cure. In one such case Professor Tillmann was ultimately led to perform a complete excision of the elbow-joint, with recovery of good mobility.

3. *Joint Disease secondary to Periosseal Nodes, or Gummatous Osteitis.*—It is this class into which some writers have attempted incorrectly to place all cases of syphilitic arthritis. It is, on the contrary, a comparatively rare form, but the particular interest from the point of view of diagnosis. Verneuil narrates that he was consulted in two such cases; one was considered to be osteo-sarcoma, and in the other it was proposed to perform amputation. The mistake is a very natural one—a firm, deep-seated

growth from the joint end of a long bone, accompanied by synovial effusion, will almost inevitably suggest sarcoma; and it may be said that the patient is fortunate if he possess some conspicuous evidence of previous syphilis to attract the surgeon's attention. Even if syphilis be suspected, and mercury and iodide of potassium be given, it may chance that the node will not diminish or may even steadily increase.

Fortunately one symptom is usually present in these cases of synovitis secondary to osteitis of the articular ends, which is of great help in the diagnosis—namely, severe aching pain (especially at night time).

4. *Chronic Synovitis with Gummatous Thickening of the Capsule.*—This form of syphilitic joint disease may imitate closely the more common strumous arthritis, and was hence described by Richet under the name of syphilitic pseudo-white swelling. Its seat is, in three out of four cases, the knee-joint, and it appears to be nearly as common as all the other varieties of tertiary syphilitic arthritis put together. The disease may be confined to the synovial membrane, which becomes greatly thickened, villous processes developing on the inner aspect, and frequently firm nodules or lumps can be distinguished at one or other part of the capsule (unlike the even doughy swelling of strumous arthritis). A typical example was figured by Lancereaux in his *Traité sur la Syphilis*, and there is an equally good specimen in the museum of St. Bartholomew's Hospital. Insidious development, very chronic course, with but slight pain or interference with mobility are the main clinical features of this form, to which we must add the amenability to antisyphilitic treatment. But if neglected more or less contraction may occur and fibrous ankylosis may supervene, owing to changes in the articular cartilages and subjacent bone. A fair number of necropsies prove that these changes consist mainly in fibration or thinning of the cartilage followed by the production of rounded or linear pits in the bone, lined as a rule by fibrous tissue, and with the appearance of having been gouged out from the articular surface. They, in some respects, offer a resemblance to the well-known changes met with in "rheumatoid arthritis" or "arthritis deformans." They differ, however, in the following points: (1) The syphilitic disease may occur in one or more joints at a much earlier period than is usual with arthritis deformans, provided its subject be in the tertiary stage; (2) the site of the erosions does not appear to be determined by intra-articular pressure; (3) no eburnation of the exposed bone takes place, and osteophytic growths or "lipping" at the edge of the articular surface is absent; and (4) the shape of the erosions, often reniform or crescentic, with well-rounded edges, differs somewhat from those seen in rheumatoid arthritis. In some of the specimens, at the site of erosion, a scar of fibrous tissue replaces the lost cartilage.

Although the majority of patients who develop syphilitic arthritis have suffered severely from other tertiary lesions of bones, lymphatic glands, or viscera this is by no means always the case, and in several of the examples I have collected the joint lesion was the only existing symptoms of late syphilis.

Joint Disease due to Inherited Syphilis.—Any of the forms previously referred to may occur in the late stages of the inherited disease, but two others require notice which are practically confined to the latter. 1. Epiphysitis in young syphilitic infants not infrequently involves the joints, and suppuration may occur from this cause as well as sometimes independently of it. In the latter case it may be doubted whether the fact of the subject being syphilitic has much to do with the suppurative arthritis, which is really pyæmic in nature. Drs. Wiltshire, Bargioni, Heubner, and

others have recorded instances of suppuration in one or more joints observed in syphilitic infants. The syphilitic epiphysitis has been so well described by Professors Parrot, Fournier, and Wegner, Drs. Taylor and Barlow, that further notice here may be dispensed with. It is a rather grave symptom, but if proper mercurial treatment be carried out the child will probably recover, and the ultimate function of the limb be but little, if at all, impaired, though the possibility of partial arrest of growth in the affected limb must not be ignored. 2. Chronic effusion into one or more joints, especially the knees, is a fairly frequent occurrence in inherited syphilitic subjects during childhood or at about puberty. It is generally symmetrical, and occurs at the same time or soon after an attack of interstitial keratitis. It is, as a rule, almost painless, and is independent of the development of bony nodes or gummata near the joints. It may subside spontaneously in a month or two, or a condition of hydrops may persist for upwards of a year. Antisyphilitic treatment has a marked effect in producing resolution, and no trace of the disease ultimately can be detected. Out of twenty cases I have collected, the association of the joint effusion with interstitial keratitis was noticed in nearly all; as a rule, the eyes are first affected, though not always. In England painless symmetrical effusion into the knees has long been recognised as a symptom of inherited syphilis, though which observer first noticed this fact is uncertain. M. Horand (1875), Hirschberg of Berlin (1884), and Mr. Clutton (1886) have published cases; the latter surgeon wrote a valuable paper on the subject in *The Lancet*, vol. i, 1886, p. 391. In this form the capsule is not thickened, and apart from the almost invariable coincidence with interstitial keratitis, the affection is, as a rule, easily distinguished from strumous disease by its objective signs.

It would be a point of interest to determine the frequency of joint disease due to syphilis, acquired and inherited, compared with that due to other causes. Schüller estimates it, from a large personal experience, as about 7 per cent. As Mr. Howard Marsh observes, "Syphilitic joint affections are not rare," and error and oversight can only be avoided by bearing this fact in mind. To distinguish them correctly is not merely a feat in diagnosis; it is of great importance to the patients themselves. Were syphilitic arthritis ten times as rare as it really is, the success of appropriate treatment would still make it worthy of study.—*British Medical Journal*, April 16, 1892, p. 797.

75.—ON CERTAIN MODES OF TREATMENT WHICH INTERFERE WITH THE DIAGNOSIS OF SYPHILIS.

By Arthur Cooper, Surgeon to the Westminster General Dispensary.

The earlier phenomena of acquired syphilis, when not interfered with by inappropriate treatment, are for the most part irregular in their development and easy of diagnosis; and when difficulty and doubt do arise, if we put aside conditions due to some peculiarity in the patient himself, the most frequent cause, as far as I have been able to judge, is one or more of these three things:—1. The application of irritants (chiefly nitrate of silver) to a doubtful sore. 2. The application of irritants (chiefly iodine paint) to the groins. 3. The untimely administration of mercury. As all these modes of treatment are not uncommonly employed, and as they are all capable of giving much unnecessary trouble to the doctor as well as to the patient, I would venture briefly to state some of the reasons why they should be avoided. The application of nitrate of silver to a sore of uncer-

tain nature, apart from the unnecessary pain and irritation produced by it, is more especially to be avoided because it is so liable to cause inflammatory hardness which may be either itself mistaken for syphilitic hardness, or may mask true syphilitic hardness. Irritation of the skin over inflamed glands is to be avoided for two reasons: First, because suppuration may be induced; and secondly, because so much infiltration and hardening of the skin and cellular tissue may be set up as to hide the enlarged glands of syphilis, if that disease has been contracted. Mercury should not be given while the diagnosis of a venereal sore remains in doubt, because the drug may either so modify the early signs of syphilis as to render them difficult to recognise, or perhaps may even prevent some of them altogether.

In illustration of these points, let us suppose such a case as this, which fairly represents a state of affairs not infrequently met with in practice: A man acquires a venereal sore. Perhaps he is married, or for some other reason is most anxious that—as he expressed it—"something should be done" at once. Unfortunately, this something often means the vigorous application of a stick of nitrate of silver. This sets up irritation and inflammation, and, if the situation of the sore be favourable, often phimosis as well. Then some enlargement and tenderness of the inguinal glands probably follows. Now something else has to be done, and this further something usually consists in a liberal use of iodine paint to the groins. The irritated glands may resent this by suppurating, or, on the other hand, infiltration and hardening of the superficial tissues may ensue to such an extent that is becomes impossible to say what may be the condition of the glands beneath. The patient by this time has probably become convinced that he is suffering from the worst possible form of disease, and he urgently demands that mercury should be begun "as a precaution," or "to be on the safe side" as he puts it, the treatment up to this point having been merely local, its mischievous effects are usually only temporary, though it may entail careful watching of the patient until the extreme limit of the incubation period of syphilis has been passed. But if the demand for mercury be satisfied, the true nature of the case may be permanently obscured. Let us assume for the moment that the original lesion was a simple one, and that there is no syphilis. By-and-by, the irritation having subsided, the sore heals, the glands subside, and the whole thing is at an end. But if mercury has been given it is very difficult to be sure of this, bearing in minds the remarkable rapidity with which syphilis in some cases is influenced by the drug. Supposing, on the other hand, that syphilis has really been contracted, that the induration of the initial lesion has been hidden by the inflammatory hardness produced by the nitrate of silver, that the characteristic adenopathy has been hidden beneath the effects of the iodine paint, that both these important signs have been further affected by the mercury, and that the same potent remedy has also prevented, delayed, or so modified the early rash that it, too, becomes unavailable as a trustworthy aid to diagnosis. The natural consequence of all this is a state of muddle which is complete for the time, and, worse still, one which may never be cleared up. By this time the patient is probably getting a little tired both of the treatment and of the uncertainty as well. And as, thanks to the mercury, which has been taken in quantity sufficient to check, but not to cure, the disease, nothing definite appears at the time, he imagines himself cured, leaves off treatment, dismisses the whole affair from his mind, and gets married. Then probably the next thing is an outbreak of syphilis in the wife or child, or both, and perhaps later signs in the patient himself. But

even if none of these things actually happen, a time usually comes sooner or later when he thinks of marrying, and seeks an opinion as to whether he may safely do so. The history he is able to give is, of course, worse than useless, for it is confusing; and if there happen to be nothing discoverable about the patient's body to assist the diagnosis, it may remain uncertain throughout his life whether he has had syphilis or not. The consequence is, he is afraid to marry; or, if he does marry, he is perpetually haunted with the fear of infecting his wife, or of having "tertiaries" himself, or of becoming the father of a spotty, snuffling infant.

I have by no means exhausted the list of disasters for which the modes of treatment in question may be responsible; but probably enough has been said to show cause why they should be abandoned. If this were done, there can be little doubt that the number of obscure cases of syphilis would be considerably diminished.—*The Lancet*, May 7, 1892, p. 1025.

76.—ON RECENT ADVANCES IN THE TREATMENT OF GONORRHŒA.

By J. H. Nicoll, M.D., Dispensing Surgeon, Glasgow Western Infirmary.

With the treatment of two classes of gonorrhœal cases only I am here concerned, and in these cases the effect of the improved treatment of recent years is very marked. These cases are, on the one hand, patients who can afford to pay for the necessary appliances, and are anxious to have their illness cut short at the earliest possible period; and, on the other, cases of gonorrhœa in unhealthy, weakly, and, more especially, intemperate men, in which there is grave risk of complications—such as prostatitis, cystitis, epididymitis, etc. In these two classes of patients vigorous treatment is necessary. Of the older treatment of ten years ago, the alkaline diuretic alone holds its ground.

The recent treatment of such cases is briefly this. Internally, a diuretic saline mixture, to render the urine dilute and unirrritating, a bland diet and total abstinence from alcohol and violent exercise. In the later stages, boracic acid in ten grain doses, or hyposulphite of soda in half drachm doses, thrice daily, may be added, the urethritis being then less a specific than a septic trouble. As to local treatment—bearing in mind that in the early stages a specific virus is at work in the mucous membrane, astringents are avoided as tending to harden the epithelium, and thus lock up the microbes to work into the deeper parts of the mucous and submucous tissues, and, in their place, germicides are employed. In the later stages a combination of astringents and antiseptics is made use of. Take, for example, two typical cases, say, in business men who cannot afford to lay up, or do not care to do so. One comes under treatment as a recent case, *i. e.*, within a week or so from the onset. He is given a supply of cocaine ointment, 2 to 4 per cent., an arrangement for douching the urethra, and a box of medicated urethral bougies containing some germicide. A large variety of these bougies, both as to shape and composition, is manufactured. Personally, I prefer the iodoform and eucalyptus bougie, introduced into this country by Mr. Watson Cheyne, but many other forms are in use, those with central spiral wire being more expensive and complicated than those of simple gelatine or cocoa-butter basis usually employed in England. On going home from business, the patient is directed to put on a pair of bathing pants under his trousers, to lie on his back on his couch, and, having well greased a bougie with the cocaine ointment, to pass it slowly into the urethra, with a slightly rotating movement, up to the hilt, the

average length of the bougie being from 3 to 4 inches. Then, having surrounded the penis with absorbent wool, he fixes it upon his abdomen by pulling up his pants, and lies reading or smoking for an hour or two, during which time the bougie has dissolved, and been largely absorbed or expelled. He then retires to the lavatory or his bedroom, and for ten to twenty minutes, douches and flushes out his urethra with a solution containing some bland antiseptic, with a very weak astringent, used as warm as he can comfortably bear. A convenient solution is a saturated one of boracic acid, with 2 grs. to the ounce of zinc sulphate, with or without 2 per cent of cocaine, 1 to 2 ozs. of which is added to a pint of warm water for use. He then inserts another bougie, and again washes out before retiring for the night. In the morning, he repeats the bougie half an hour before rising, and washes out before going to business, finally placing his penis in an absorbent wood-wool bag, which diffuses the discharge uniformly throughout its entire extent; and, therefore, does not plug the meatus like the customary pad of lint. Such treatment will, in many cases cure gonorrhœa in from three to six days; and, if the patient can remain indoors and repeat the bougies and douche every few hours, in less time. Some trouble is evolved, no doubt, but the inconvenience is nothing compared to weeks of soiled linen and agonizing micturition, and the risk of bubo, epididymitis, etc. There is seldom any great difficulty in introducing the bougies into even the most acutely inflamed urethræ, if the cocaine ointment be liberally used and due time taken. Should, however, the patient be irritable and complain much of pain, the object of the bougie can be readily obtained in another way—viz., by filling the urethra with iodoform or other ointment, by means of a deep urethral tube of a smaller calibre than those used in the treatment of gleet. Cocaine may be added to either the bougie or the ointment to facilitate the subsequent douching. As to the odour of the iodoform, once the urethra is douched this largely disappears, and while the bougie is *in situ* a strong cigar at once defies suspicion and protects the patient's olefactories. Iodol or salicylic acid, however, may be substituted for iodoform. In the case of the patient coming under treatment at a later stage, the only differences made in the treatment are made in the composition of the douching solution, the astringent ingredient being relatively increased, and in the composition of the bougies, simple eucalyptus bougies or ointment, combined or alternated with astringents such as tannic acid, lead acetate and opium, thallin, etc., being used. The advantages of employing these remedies in the form of bougies or ointments in place of solutions are—that, in the first place, their application can be more accurately limited to the inflamed portion of the canal; and, in the second, prolonged contact of the remedy with the disease is secured. As regards the douching, various forms of apparatus are in use, the principle involved in the construction of all of them being a plugging of the urethra by their distal extremities, with provision for the stream injected taking a direction in the urethra backwards towards the meatus, and that only. Teevan's injector is best fitted on to a syphon tube, which gives a continuous stream. It is made of soft elastic gum of a length of from 6 to 8 inches. The stream emerges through the orifices, four in number, in the "neck," and, the "head" plugging the urethra, takes the direction of the normal stream of urine, washing out all discharge from the canal. I have also had an instrument made for me by Messrs. Khrone and Sesemann. It is a modification of Whitehead's catheter, from which it differs simply in being straight instead of curved, and in being composed of soft pliable elastic gum in place of hard vulcanite. The fluid emerges at the "neck," and travels back to the meatus along the

spiral groove. It is fitted to a Higginson enema syringe, and has, to my mind at least, the advantages that the urethra is well distended, and that by a gentle rotation of the catheter the discharge can be more effectually dislodged from the urethral walls. Before using either bougie or douche, the patient is directed to empty his urethra as far as possible by micturition.

It may be argued that if the meatal syringe inoculates the deeper parts of the urethra by washing in virulent discharge, these douches will do so by carrying in discharge adhering to them. Though I am not prepared quite to deny the possibility of this occasionally occurring, it seems hardly likely that it can do so frequently, for, in the first place, these douches pass during insertion through, not gonorrhœal discharge, but gonorrhœal discharge mixed with a powerful germicide, and, in the second place, the walls of the urethra separating and gliding over their bulbous extremities must rapidly remove any adherent substance before any extent of healthy canal has been traversed.—*Glasgow Medical Journal*, September, 1892, p. 181.

AFFECTIONS OF THE EYE AND EAR.

77.—A METHOD OF INFECTION AND TREATMENT OF PURULENT OPHTHALMIA.

By G. M. Gould, M.D., Ophthalmologist to the Philadelphia Hospital.

Almost every case of purulent conjunctivitis indelibly impresses upon the mind of the surgeon two striking and puzzling facts: 1. The obstinacy of the disease, its stubborn persistence and unaccountable resistance to the most thorough and most scientific methods of treatment. We cleanse, we irrigate, we antisepticise, we deplete, we use counter-irritants, we stimulate, we constringe, and we cauterise—and the wretched pathologic processes keep on and on until cornea and eye are irremediably injured or ruined. Various explanations of this fact have been made, but to my knowledge the one that I am about to offer, and which seems to me to be one of perhaps several contributing causes, has not before been given. 2. With one eye infected we hasten to isolate the good eye, using all the methods, so well known, of shields, bandages, antisepsis, and various cautions to patient and nurse. Despite all our prophylactic measures, carried out with the utmost care and apparent success, the hitherto sound eye is, by-and-by, too often found infected, and we have to redouble our exertions to save that. Very often, indeed, the eye last affected is most affected and most injured.

The explanation of these two characteristic features, or rather one explanation of them, I believe to be the rôle played by the nose and the lachrymal excretory apparatus as transferring agents and hiding-places of the specific germs.

1. Nose-picking with this class of patients is more common than eye-rubbing. While, therefore, the contagium may have been transferred directly to the eye, it is quite as reasonable to suppose that it may first have passed through the nares, duct, sac, and canaliculus.

It is a work of supererogation to set forth the well-known facts of the interdependence of nasal and ocular disease. I have elsewhere recapitulated these facts, and need only say that a large number of observers have demonstrated that the ocular drainage-system may be the passageway for the transfer of morbific material from the antrum of Highmore, and the nasal or post-nasal cavities, to the eye. Every modern book on rhinology

speaks of this, and every physician has seen evidences of it. This, however, has been shown or suggested only in so far as relates to phlyctenular and sundry of the slighter forms of conjunctival and corneal disorders. It seems strange that no one has taken the suggested step of applying the same explanation to the origin of the more virulent types of gonorrhœal and contagious purulent disease.

2. Whether or not the primary contagium may have reached the eye directly or by way of the nose, the canaliculus, sac, and duct will most certainly be the secondary sinuses and hiding-places of the specific germs or septic material. We kill the gonococcus upon or in the conjunctiva, but do not think of the enemy entrenched just beyond the border, waiting to break over the moment our antiseptic army withdraws. In purulent ophthalmia the congestion of the parts, and doubtless often the stenosis, more or less complete, of the lumen of the canaliculus and duct, prevent any effective antiseptic irrigation of the same by natural capillarity or unaided excretion. Expression of the canaliculus and sac contents, and aided irrigation in the manner I have advised in dacryo-cystitis (*New York Medical Journal*, June 4, 1892) would perhaps do in light cases, and when the physician does not slit the canaliculus. The thick, purulent, and gummy character of the ocular secretions can find little or no passageway through the tight punctum and canaliculus, whose lumen is narrowed or quite closed by the swollen tissues about it or forming it. Hence the living germs lying just beyond the action of our ordinary antiseptic agents, and multiplying by millions in a few hours, have an excellent breeding-ground, whence, continually erupting through the punctum, we have a prolific fountain of fresh infection.

3. Passing down the duct also, is it not natural that the germs should readily find their way around the turbinated bones and up through the opposite duct to the other eye, and thus, despite all our isolation and prophylaxis, infect that by means of the tunnel or secret passageway we had forgotten? If this seems somewhat too long a journey, repeated direct infection of the nares by the fingers would explain the late appearance of the disease in the second eye.

The foregoing explanation finds corroborative support in the fact that the nasal mucous membrane, and probably therefore the lining membrane of the duct, sac, and perhaps (though doubtless to a lesser degree) also of the canaliculus, are more resistant to the microbes of suppuration and gonorrhœa than the conjunctiva. It is a curious fact, this of the extraordinary sensitiveness of the ocular conjunctiva to the injurious action of these germs, and it indicates that these find in the ocular tissue a food exactly to their liking, which they are therefore continually seeking—trying always to get away from the less fertile ground of the nasal mucous membrane and into the richer soil of the ocular analogue. The granulations of trachoma have been found in the canaliculus and sac, but not, I believe, in the nose.

A recent German writer has noticed that young infants of gonorrhœal mothers often show evidences of the specific infection (mucous patches) in the mouth, and that sometimes, following these oral ulcers, there ensues ophthalmia neonatorum. He also alludes to the fact that throughout the entire body the ciliated or cylindrical type of epithelium of mucous membrane is very resistant to the gonococcus, whilst in that lined by squamous or round-celled epithelium the micro-organism multiplies prodigiously. This, therefore, explains why the nose and duct escape injury, whilst the conjunctiva is destroyed. It may also be added that perhaps the eye of the infant may be infected without the intermediation of the nose, by

means of the hands of the careless mother or nurse (even by the child's hands) that may convey the virus directly from the mouth to the eyes.

The treatment suggests itself. The next case of gonorrhœal ophthalmia I have I shall at once slit the canaliculus clear into the sac, cleanse, and antisepticise the latter precisely as I do the palpebral sulci, and thoroughly syringe the duct with the antiseptic solution. This I shall do as often and as carefully as the distinctly ocular cleansing and antisepsis. I shall also direct the same solution or a stronger one to be snuffed up the nose.

With one eye certainly infected, I would, besides the usual prophylactic procedures, at once also open the canaliculus of the sound eye, and, while the danger lasts, irrigate the sac and duct thoroughly and repeatedly. The nasal douche also should not be neglected. The patient's hands and fingers should of course be kept antiseptic and away from his nose just as carefully as from his eyes.

It may be said that this is all theory, and that I should have proved it by clinical experience before advocating it publicly. I have by experience found some confirmative evidence of the theory, but at present my only answer is that, since the idea occurred to me, I have had no suitable cases, and my interest in your patients leads me to advise you to try the plan. It might save a few eyes that would be ruined whilst I alone were experimenting. I would prefer to be the father of a false theory rather than that a single eye anywhere should be blind for lack of one little method of treatment that at least seems rational, and the application of which, if it do no good, can certainly do no harm.—*Medical News*, June 11, 1892, p. 657.

78.—ON THE TREATMENT OF TRICHIASIS AND ENTROPION.

By W. A. McKeown, M.D., Surgeon to the Ulster Eye and Ear Hospital, Belfast.

The unsatisfactory nature of the treatment of these affections may be judged by the large number of operative procedures of one sort or other which the writers of handbooks of diseases of the eye think it necessary to detail. There can be no question about the ingenuity displayed, but as a rule it is not directed to simplicity of method. I find in Swanzy's excellent handbook no less than eight chief operations for trichiasis and organic entropion and four for spastic entropion. In Meyer's book there are about a score of operations described and more mentioned. These books purport to be written chiefly for students and general practitioners, but even to one familiar with ophthalmic surgery it requires attentive reading to grasp all the technicalities. The operations referred to may be objected to on one or more grounds. First, unnecessary destruction of tissue; secondly, complexity and difficulty in execution; and, thirdly, uncertainty. I will not discuss or even name these different operations, but proceed to describe a method which I have practised extensively, and which I think will supplant all other methods. The operation is as follows:—First stage—If the upper lid is to be operated on, introduce the smooth handle of a dessertspoon under the lid, to protect the eyeball and support the lid; let the assistant hold it whilst the surgeon steadies the lid on the handle with the left hand, and with the right hand introduces a Graefe's cataract knife at the margin of the lid between the eyelashes and the Melbomian glands, either close to the punctum or at the outer canthus; then push the knife beneath the skin about as far as the orbital margin, and by to-and-fro motion cut along the whole of the lid margin

until he has the lid split into two layers, the outer layer containing the skin and eyelashes, the inner layer the cartilage, Melbomian glands, etc. If the skin and hairs can be moved freely upwards, the section has been properly made ; if not, blunt-pointed scissors should be passed into the section, and any tissue preventing free motion cut. Second stage—The skin and eyelashes are glided upwards so as to expose about two lines of the cartilage, and are to be secured in their new position as follows. A curved needle with a strong silk iodoformed thread is to be passed through the skin at the middle of the lid about two lines from the eyelashes, then through the cartilage, emerging on to the conjunctival surface about four lines from the margin, and then the needle is to be passed back again through the cartilage and skin, coming out a line or so from the original point of entry on the same horizontal line. A thread is then passed in the same way near the outer and inner canthus respectively. The skin layer and the cartilaginous layer of the lid are now secured by three loops of thread in such a way that the lashes must be displaced upwards far from the eye. Each thread is tied with moderate tightness over a tiny roll of lint or cotton-wool. Adhesion of the two layers in the new position quickly takes place. It is evident that at the outer and inner corners of the section the hairs will not be so much deviated as at the centre, and if the surgeon should think there was any special tendency to a turning in of the hairs at these parts he should make a small vertical incision through the skin, and by a suture at each corner elevate the eyelashes to the desired extent. Third stage (grafting)—At one time I followed Von Milligen's method by taking a graft from the mucous membrane of the lip, but I found that the taking of such a graft was not a very expeditious procedure. I have for a considerable time taken the graft from the back of the ear, and for ease of performance and perfection in result I do not think it could be surpassed. I expose the back surface of the ear, pass a Graefe's knife under the skin for about an inch, then cut out on one side, and separate the attached side by fine scissors. I place the graft on the back of my left hand, and with fine scissors remove all subcutaneous tissue (this can be done quickly) ; remove any blood with lint soaked in warm boracic acid lotion, and immediately apply the graft to the exposed surface of the tarsal cartilage, previously cleared of all clots, and likewise cleansed with boracic lotion. I may remark that I think solution of perchloride of mercury not desirable in grafting operations because of its coagulating power. I adjust carefully the graft by a probe, and do not proceed to the dressing until it seems to be pretty adherent. Fourth stage (the dressing)—Apply a little strip of lint, saturated with warm iodoform and vaseline ointment over the graft, and on the top of that a piece of lint to cover the whole eyelid, similarly saturated, then dry lint and bandage. Both eyes are bandaged. The patient is put to bed and not disturbed for four days. At the lapse of that time the stitches are removed, but the eye operated on is bandaged for three or four days more. It may be observed that I couple trichiasis and entropion, and write of them as if to be treated by one operation. If the cartilage be thickened or distorted, it is obvious that with such a free exposure of the cartilage the surgeon can do anything with it ; he may groove it or pare, etc., as surgeons have recommended, but the grooving, paring, etc., would be only a small incident in the general operation, and hardly worth naming as a separate or modified method.

The features of this operation are :—1. That no skin or other tissue is destroyed or removed, save in thickening or distortion of the cartilage. 2. Expedition in performance. 3. Certainty of immediate result, and no

liability to relapse. 4. Its applicability to all sorts of trichiasis and organic entropion. I have not described the operation for trichiasis of the lower lid, as there is but slight variation. As to what is called "spastic entropion" of the lower lid in old persons, arising chiefly from relaxation of the skin, I see in the text-books, old and new, several operations described. The trouble, however, may be sufficiently relieved without any operation at all. All that is necessary is to put a little pressure on the lower lid, and that may be conveniently done by a spectacle frame of such a form as to press on the lower lid, or, if that cannot be found, by putting a ledge on the lower edge of the frame. For this suggestion I am indebted to my brother, Dr. McKeown, of Manchester, who has always put it in practice. Patients prefer this simple and effectual method to any operation. When only a few hairs are deviated I see in some books of repute that it is recommended to excise the hairs with the skin. I have never done this, but I have seen cases in which it was done with disastrous results. Even when a few hairs are faulty it is commonly better to operate on the whole lid, as I have described. It seems a more formidable operation, but in the matter of personal appearance it is far superior to the seemingly simple excision. Should I wish to get rid of a few hairs and not to do the complete lid-splitting, I introduce the knife between the faulty hairs and the Melbomian glands, bring the point out through the skin two or three lines from the margin, then cut on till I have passed all the hairs to be dealt with, and cut out on the skin surface. I thus have a little flap which I can evert. I snip out the roots of the faulty hairs, then replace the little flap, and secure it by suture. Neither skin nor margin of the lid is injured.—*The Lancet*, April 2, 1892, p. 743.

79.—SUCCESSFUL CASE OF LIGATURE OF INTERNAL JUGULAR VEIN AND TREPHINING LATERAL SINUS IN AN EAR CASE, WHILE THE SYMPTOMS OF PYÆMIA WERE WELL PRONOUNCED.

By H. H. Clutton, F.R.C.S., Surgeon to St. Thomas's Hospital.

On December 7, 1891, Dr. Sharkey was called into consultation by Dr. Gordon Hogg, of Chiswick, and Dr. Hartzhorne, to see a boy who was suffering from head symptoms and a high temperature with rigours. The case was as follows: A boy, aged ten, was seized on November 27th with acute pain in the head and right ear. On inquiry it was found that in the preceding May he had had influenza followed by pain in the right ear, and a discharge, which had continued in a trivial manner ever since. But on examination at this date (November 27th) Dr. Hogg could not find any pus in the auditory canal, and the pain seemed to be situated rather below the ear. On November 30th Dr. Hogg came to the conclusion that an abscess was probably forming in the tympanum, and ordered the canal to be freely syringed. On December 2d, five days after the outset of the symptoms, he was sick and had what was thought to be a fit. He became livid and faint, but had no definite epileptiform convulsions. It was probable that at this time the internal jugular vein was suddenly obstructed by thrombosis, and caused the slight cerebral disturbance resembling a fit. It may, however, have been due to the inflammatory infiltration around the internal jugular vein compressing the pneumogastric nerve, or in some way interfering with its function. This attack was followed a few hours afterwards by a rigour and a temperature of 105°F. On each of the next four succeeding days there was a rigour with a tem-

perature varying from 103° to 105°, followed always by a sharp fall to a point between 97° and 99°, and accompanied by profuse sweating. There was no discharge from the ear, but the pain in the right side of the head and ear continued. A swelling also in the neck on the right side at the angle of the jaw appeared and steadily increased in size.

At the consultation held on December 7th, between Dr. Sharkey, Dr. Gordon Hogg, and Dr. Hartzhorne, the boy seemed in a very critical condition. He had had five rigours of the kind usually seen in pyæmia. He complained only of pain in head and ear, the swelling in the neck having come on some time after the onset of these symptoms. There was no other lesion to account for the illness except suppuration in the middle ear, which was previously discharging scarcely a noticeable amount of pus, but had ceased to discharge altogether at the time of the first commencement of the attack on November 27th. There was neither optic neuritis nor any tenderness over the mastoid. But with the history of a slight previous discharge from the right ear, persistent pain on the right side of head, and the inflammatory swelling at the right angle of the jaw, they came to the conclusion that the pyæmic-looking rigours and fever were probably indicative of suppurative thrombosis of the lateral sinus, and that the internal jugular was blocked below. Dr. Sharkey therefore suggested that a surgeon should be asked to see the case with reference to trephining over the lateral sinus and ligaturing the internal jugular in the neck. As the consultation was late in the afternoon I was unable to reach the house before 9.30 P. M. In the meantime the boy had begun to complain of pain in the left forearm, and on examination a tender red patch was found, with a slight deep-seated swelling over the ulna. The lungs were described as being free from any discoverable lesion. There was no swelling or tenderness over the mastoid, but at the right angle of the jaw there was a large pyriform inflammatory swelling, which terminated abruptly at the upper border of the thyroid cartilage, leaving plenty of room below for a careful dissection of the internal jugular. No cord could be felt in this position, and it was thought that it might possibly be free from septic clot.

It was therefore determined to expose the internal jugular vein as low as possible in the neck and cut off its connection with the general circulation. Chloroform being given by Dr. Hogg, the internal jugular vein was exposed, and found to have extremely thick walls, resembling an artery, but to be quite collapsed and empty. It was then carefully freed from the surrounding tissues for some distance, and a double kangaroo tendon ligature passed round, divided, and tied at each end of the incision. The vein was then divided between the two ligatures, and the upper end still further separated and brought out at the upper angle of the wound. This was done for the purpose of being able at a later stage to syringe through from the lateral sinus whenever it should be opened. It had also the great advantage of separating it completely from the cardiac end of the vein. It was seen on section of the vein that a tail-like thrombus occupied its anterior. This was floating free from the walls in a condition such as is often seen in advancing or receding thrombosis.

Considering the weak condition of the patient, it was thought best to postpone the further treatment of the case till the next day. We had, as we thought, cut off the connection between the infecting centre and the general circulation, which was the primary object of the operative treatment. The patient rallied well from this operation, and was transferred the next day by ambulance to the Victoria Home in Chelsea, where the subsequent treatment was carried out.

On the next two days the temperature rose nearly to 102° and 103° respectively, but without any rigours. He was distinctly stronger and better in general condition at the end of these two days than he was before the first operation.

On December 10th, with Mr. Tyrrell giving chloroform, and with the assistance of Messrs. Nairn and Staveley, I proceeded to trephine over the lateral sinus. A point 1 inch behind, and ¼ inch above, the centre of the right auditory canal was selected for the crown of the trephine. Pus began to well up as the bone was divided, and on the removal of the disc it was seen to come from the occipital side of the opening, and from beneath the dura mater. The lateral sinus occupied the centre of the trephine opening, and on testing it with a trocar was found to contain pus. The sinus was, therefore, slit up and washed out. The ligature was then removed from the upper end of the divided jugular in the neck, and the nozzle of the syringe in the sinus directed towards the jugular foramen. A full stream issued from the opening in the neck, carrying with it broken-down clot and pus.

The swelling in the left forearm, which had been steadily increasing, was also incised. It contained no pus, but was an inflammatory effusion around the lower end of the ulna. The incision gave complete relief, for the boy made no further complaint about the pain in this arm, which had previously been a source of frequent crying. He had also for some days complained about his left ankle, which we found on examination to be full of fluid, and red on the surface. As he had had enough operative treatment for that day, it was placed in a plaster-of-Paris splint. His temperature fell after the trephining, and remained lower for forty-eight hours than it had been for the previous week.

On the night of December 12th it again rose to nearly 104° F., and the boy was constantly crying from pain in his ankle. It was, therefore, examined under chloroform, and found to be much larger. An incision was made on each side, and a quantity of pus evacuated. The joint was washed out, but no sutures or drainage-tubes were employed. This also gave complete relief from pain, and only required a few dressings. The temperature after this never rose again to its former height, but occasionally showed a rise of from 1 to 2 degrees above the normal standard after some of the prolonged dressings that were necessary for the head, neck, arm, and ankle. The boy made a slow but uninterrupted recovery, and is now quite well. He had a slight discharge from the right ear dependent on a few granulations in the tympanum, which may possibly require some simple treatment for their removal. The ankle eventually recovered all its movements, and no necrosis of the ulna took place.—*British Medical Journal*, April 16, 1892, p. 807.

80.—ON AURAL POLYPI.

By Marmaduke Shield, F.R.C.S.

I believe that the majority of aural polypi grow from within the tympanic cavity, and have their origin in the constant irritation of a focus of necrosis. The carious bone may be on the superficial aspect of the tympanic walls or it may be in the mastoid or other part of the temporal bone; the polypus then springing about the orifice of the sinus by which the disease communicates with the tympanic cavity. It must early be recognised that these growths have their origin in perforative otorrhœa, neglected and of long standing. They protrude through the aperture in

the drum, and are moulded as they grow by the walls of the canal into polypoid form. Aural polypus would not be so common a disease if the treatment of otorrhœa was commenced early and persistently and carefully carried out. Polypi also originate from the walls of the auditory canal; here they may be caused by a "spot" of caries. They may originate round the orifice of a sinus, or they may have their starting-point in the constant irritation produced by the flow of foul and irritating pus. I have examined with the microscope a large number of aural polypi. They are composed of simple granulation tissue covered with epithelium, and there is no essential difference between the structure of a soft, florid, aural polypus and the fungous granulations that are seen about a sinus leading down to a diseased femur or a necrosed jaw. Its form is merely determined by the confined condition in which it grows. The more rapidly the polypus increases, the more it is encouraged by the injudicious warmth and moisture of poultices and fomentations, the softer it will become. Its structure will then be almost myxomatous. Aural polypi which have grown slowly and lasted long will be fibrous in consistence, and covered on the surface by well-defined flattened epithelium. Different names are given to varieties of aural polypi derived from their consistence and colour. Such are the "raspberry polypus," soft and friable, the "œdematous polypus," the "gelatinous polypus," and others. For purposes of practice, however, it is far better to look upon these growths as representing embryonic tissue in different stages of development.

In rare cases polypi are extremely vascular, large quantities of blood flowing from the ear when they are in any way interfered with; to this variety the name of "angiomatous polypus" is applied. True sarcomatous polypus is exceedingly rare. It is difficult, if not impossible, for the most experienced histologist and pathologist to certainly distinguish by the microscope between embryonic granulation tissue and rapidly growing sarcoma. The structure of both may be identical. Accordingly, when these growths were removed, and recurrence took place, it was frequently assumed that this recurrence was due to some inherent malignant qualities in the growth itself; the fact that recurrence of the growth was dependent upon the persistence of the local conditions that originated it was lost sight of. In a recent issue of the *Archives of Otology* I have related a case of this nature which is of very great importance. The polypus in this case was microscopically pronounced to be sarcoma by one of the best pathologists in this country; but the results of operation make me tolerably certain that it is not so, but that the growth was luxuriant granulation tissue dependent upon a fistulous sinus, from the mastoid to the bony canal, near the drum.

In the treatment of aural polypus these growths must be looked upon as symptoms of a local disease, which needs much care and attention after removal of them. If a polypus be removed, and nothing further be done, the patient will undoubtedly obtain great temporary relief, but he will as undoubtedly again present himself for treatment suffering from another growth. Thus it is not infrequent for patients to tell us that they have had a polypus removed two, three, or even more times. Before, therefore, undertaking the treatment of one of these cases, it is well to impress upon the patient the great importance of a long continuance of after-treatment. Five or six weeks of attention after the operation are frequently needful, and intermittent inspection and treatment for several months after this; while the patient must, as long as he lives, studiously carry out those local and hygienic measures so important in perforative otorrhœa. True malignant disease attacking the temporal bone in the form of epithelioma or

sarcoma is characterised by progressive and inveterate increase, severe lancinating pains shooting along the course of the branches of the fifth nerve, watery and bloody discharge, and rapid emaciation and cachexia from pain and exhaustion. We can hardly compare such a case with aural polypus. The diagnosis of polypus is always easy when the growth is large; a small deeply seated polypus may be readily overlooked. Such a growth will perpetuate otorrhœa indefinitely. Hence it is very important to carefully cleanse the ear by syringe and wool before inspecting it. Polypi have also been mistaken for exostoses. The latter class of growths are slow in progress and pale in colour, besides being definitely dense and osseus to the probe. In secondary syphilis condylomata have been known to occur in the auditory canal. This is rare, and we should be guided by the other signs of early syphilis, which would be probably strongly marked in such a case.

Before discussing the active treatment of aural polypi, it is necessary to say that these cases are not devoid of risk. The parts implicated have been long bathed in virulent septic fluids, and general pyæmic infection may follow the opening up of small venous trunks. Again, the operation may precipitate such serious cerebral lesions as meningitis and thrombosis of the lateral sinus. This is especially apt to occur when the case is neglected after operation, exposed to the bitter cold of an east wind, or allowed to become offensive and suppurate owing to want of cleanliness. For this reason one never undertakes these cases in out-patient practice without the apprehension of some mishap. Yet another caution. Persons suffering from polypus of the ear often delay operation until they or their relatives are alarmed by severe and dangerous symptoms. Thus a patient may apply for relief when he is already suffering from lateral sinus thrombosis, incipient meningitis, or even cerebral abscess. Here the polypus is but a small matter compared with the grave conditions alluded to. If we remove a growth from the ear without recognising such other serious conditions, we shall be unprepared for the probable fatal issue, for which the friends will blame us and the operation. Symptoms of urgency in cases of aural polypus are attacks of pain, vertigo, and sickness, and there is nothing more difficult to determine in practice whether such symptoms are due to mechanical pressure of the polypus and retention of discharge or are significant of some more serious condition.

It is always advisable, if possible, to well purify the ear before operating. This I usually carry out by syringing with warm carbolised or boracic lotions, and soaking the growth in warm alcoholic solutions of boracic acid. In addition to lessening the risk of septic infection these measures cause some shrinkage of the growth and diminution of hemorrhage. The best position for operating is the recumbent one, with the head high. The parts should be well illuminated by the electric light or the forehead mirror, with a strong lamp or good daylight.

As regards operative treatment, aural polypi may be advantageously considered under the following headings:—(1) The pedunculated polypus; (2) the flat, sessile polypus, and polypoid granulations. The pedunculated polypus may project beyond the meatus, or may be very small, not larger than a No. 1 shot. The larger the growth, the more easily it is detached. There is nothing more difficult than the removal of a small, deeply seated aural polypus. I prefer the snare for all pedunculated polypi of any size. Special features of this particular instrument are the fine wire and exceedingly slender barrel. By means of the special rack-and-pinion arrangement in the handle, the growth is securely held as the wire is tightened. This instrument is invaluable, I think, for small, deeply seated pedunculated

growths. It is essential that the wire loop be well pushed down towards the stalk of the polypus, and then the latter readily comes away on traction. Smart hemorrhage, checked by warm syringing, ensues. There are various patterns of forceps, including the time-honoured "leverring" forceps of Toynbee. I especially invite attention to the fine and slender modified ring forceps, which has the serrated teeth of an artery forceps in the ring, and a clamp catch in the handle. Any small polypus can be deliberately picked away with this instrument. The clamp catch prevents the possibility of slipping, and this forceps is one of the most useful I have ever employed for deeply seated growths. Some surgeons prefer to twist off pedunculated polypi with the forceps; others use the method of rotation, the growth being several times twisted on its own axis; the nutrient vessels of it are thus strangulated, and sloughing and extrusion ensue. This method is only applicable to polypi with defined and slender stalks. The treatment of sessile growths and polypoid granulations is more unsatisfactory. They are difficult to grasp. No snare will encircle them. They may be attacked after the following methods. First, they may be lacerated and broken up, portions of them torn away, and then some powerful caustic, preferably pure chromic acid, applied to them. They may be destroyed with the galvano-cautery cautiously employed, or extirpated with the curette, or shaved away with a ring knife. The method of laceration and application of caustics is what I usually adopt, and it gives in many cases admirable results with a minimum of risk. The application of such materials as chromic acid, potassa fusa, or perchloride of iron may give rise to very acute pain, and in the young or nervous this proceeding is best done under anæsthetics. When growths originate from the walls of the canal external to the drum their site may be attacked with confidence and vigour. Many of them will be found to originate round the orifice of a sinus, leading backwards towards the mastoid. Some will be dependent on superficial caries or necrosis easily reached. I know of no better or more radical means of dealing with these growths than by the sharp curved curette, combined with the application of the galvano-cautery or chromic acid. The operation is tedious owing to the free oozing. Frequent hot syringing and cotton-wool pressure are requisite at intervals, and the operation should never be proceeded with when the parts are obscured by bleeding.

After removal of a polypus from the ear the patient must be clearly warned of the great liability to recurrence, and he should present himself at intervals for many months for careful inspection. For some weeks after the operation the site of the growth should be persistently treated with caustics so long as any evidence of living tissue remains in the stump. How and when this is to be done is a matter to decide for each individual case, but it is better to proceed cautiously, rather doing too little than too much, and to apply powerful remedies only to the stump or site of the growth under a good light. When aural polypi are treated in this way the results leave nothing to be desired, and the cases are among the most satisfactory in surgery. Want of care, and especially of patience, in the after treatment will certainly lead to disappointing result. The question of opening the mastoid cells will often arise in these cases, with a view to effect free drainage. If there are fistulous openings about the mastoid, it is well to enlarge these cautiously with a rose-headed drill, and with blunt scoops evacuate any "cheesy" *débris*. If there are definate signs of mastoid suppuration, especially intense pain and localised tenderness, this operation should not be delayed as a general rule.—*The Lancet*, May 28, 1892, p. 1171.

81.—ON LABYRINTHINE DEAFNESS TREATED BY PILOCARPIN.

By G. P. Field, M.R.C.S., Aural Surgeon to St. Mary's Hospital.

[Mr. Field's cases are here omitted.]

Inasmuch as my last paper on "The Treatment of Labyrinthine Disease," with its record of cases, was productive of various adverse criticisms, some of which appeared to call in question the maturity of my conclusions, I determined, before writing again on the subject, to thoroughly reinvestigate it during an additional prolonged period, both in hospital and private practice. The interim has afforded me the opportunity of testing the permanency of the good results reported to have accrued from the use of pilocarpin.

As the outcome of my further study of the disease, its symptoms, and its modes of treatment, I would offer to such practitioners as have not yet had experience of its relief by means of pilocarpin the following observations:—*(a)* The case must first be carefully diagnosed as actually one suitable for treatment with the drug. Labyrinthine deafness, it must be remembered, is not a disease of common occurrence. *(b)* The larger number of the patients that hear better in a noise (when in a train or omnibus, for example) do not derive much, if any benefit from pilocarpin, if used independent of other remedies. *(c)* The best test of hearing is to employ a large tuning-fork with a wooden handle, acting as a sounding-piece, to put on the head. Some of the small tuning-forks commonly used are worthless to the aural surgeon. *(d)* Cases in which the tuning-fork on the forehead is heard indifferently or scarcely at all may be suitable for treatment with pilocarpin. *(e)* Patients with a syphilitic history are usually much relieved, and the possibility of hereditary syphilis in a given case must be born in mind. *(f)* The very large number of patients that say they hear worse after a cold are mostly unsuitable cases. *(g)* Patients who say they can hear when they are spoken to very distinctly, or whose deafness began with a difficulty of discriminating sounds, or who cannot make out general conversation, and hear worse when tired, nervous, or feeling out of health are more promising cases than the last mentioned. *(h)* In arriving at a diagnosis, the state of hearing as tested by the watch and the condition of the drum-head should be noted. *(i)* Some cases of marked aural vertigo derive benefit from pilocarpin. *(j)* If middle-ear disease is associated with mischief in the internal ear, the Eustachian catheter should be passed from time to time for the injection of vapours.

My usual method of administering pilocarpin is to inject into the back of the arms a solution of the nitrate of a strength equal to $\frac{1}{8}$ gr. to 10 minims. The dose at first, $\frac{1}{12}$ gr., is gradually increased to $\frac{1}{8}$, $\frac{1}{6}$, or, if well borne, $\frac{1}{4}$ gr. The effect is speedily manifested by diaphoresis and copious salivation. After each injection I give half a drachm of sal-volatile in a small tumblerful of water. The patient is then made to lie on a sofa, and is well covered with rugs, the head being enveloped in a shawl. When the effects are wearing off the wraps are removed, but only by degrees, in order to avoid the risk of catching cold. In the event of faintness or other discomfort from the exhibition of the drug I give brandy at once, which I keep ready at hand, and find the best restorative. Untoward symptoms need not be apprehended if the precaution of beginning with the small dose above-mentioned be strictly adhered to.

Due attention to the foregoing particulars will enable me to reduce to comparatively few the number of cases amenable to treatment with *pilocarpin*.

In further illustration of my subject, I would advert to the testimony of Dr. Bronner in *The Lancet* for September 28, 1889. He points out that improvement under treatment with pilocarpin cannot reasonably be hoped for where long-continued disease has caused much thickening and calcification of the membrana tympani, ankylosis of the ossicula, or extensive changes in the internal ear or auditory nerve; that one ought to be satisfied in chronic cases if it can merely arrest the progress of disease; and that in some acute or subacute conditions it may not only do that, but may even restore normal hearing. He, moreover, advocates the use of the Eustachian catheter in addition to injections of pilocarpin, when the deafness is not entirely due to affections of the internal ear.

Dr. Bronner then proceeds to remark that he has used pilocarpin with very good results. One of his patients, a girl, aged 12, with a history of congenital syphilis, and suffering from a subacute affection of the middle and internal ear, could not hear the watch at all, even in contact, or loud speech at two metres, but after twenty injections of pilocarpin, she heard the watch with the right ear at twenty, and with the left at six inches, and could distinguish whispers at more than five metres with either ear.

I now learn from Dr. Bronner (February, 1892) that since the publication of his paper he has treated with pilocarpin ten cases. Of five of these, having a history of congenital syphilis and exhibiting symptoms of disease of the internal and middle ear, four did well and one did not improve. Of four others who had suffered from acquired syphilis two were much benefited.

One case of subacute inflammation of the internal ear was very successful, as at first the watch was not heard on contact or a loud voice at two yards, and after treatment the watch was audible with the right ear at twelve and with the left at eighteen inches, and a whisper at more than four metres with either ear.

In conclusion, I would reiterate my previous contention that, when suitable cases are chosen for treatment, pilocarpin is a most valuable remedy in labyrinthine deafness, especially that due to syphilitic taint. I do not pretend to deny that in not a few instances of indubitable labyrinthine disease the drug has proved inefficacious; but, on the other hand I maintain that with enlarged experience, due regard being had to the rules for diagnosis above indicated, one's powers of distinguishing individuals of the comparatively small class of patients likely to gain benefit from its administration are continually receiving accessions, past failures are rendered capable of explanation, and some approach can be made to a definite prognosis.—*British Medical Journal*, April 2, 1892, p. 701.

82.—ON CANCER OF THE EAR.

By Sir William Dalby, F.R.C.S.

In the history of cancer, which is at the present time subjected to such rigid analysis and receives such able handling from the Bradshaw lecturers, it seems advisable to place on record the experiences of individuals who have more than the usual opportunities of observing the occurrence of cancer in any especial locality, so I therefore embody what experience I possess in a few observations on cancer as it has come before my notice during the past twenty years in the very limited area of the ear. With one exception, as will be noted, this area might be more limited by using the term "middle ear," and even still further by saying "the cavity of the tympanum." In the course, then, of twenty years I have only seen six cases in all, including both hospital and private practice, and, without

knowing what the experience of others may have been in a similar time, I should be inclined to say that, considering the opportunities I have had, cancer of the ear is, comparatively speaking, a rare disease. It is to be remembered how exceedingly often the mucous membrane which lines the tympanum is left in an exposed position, this being due to the fact that an enormous number of persons pass the largest part of their lives with a perforation of the tympanic membrane in one or both ears. The first point to be observed is that in the four cases I had seen up to 1885, and in all the recorded cases I could find (and there were very few), the patients had suffered for a considerable time from a discharge from the ear, evidently arising from a perforation before any symptoms of malignant disease appeared, and that in the early stages the appearances most closely resembled polypus arising from the tympanic cavity or ordinary bone granulations. Thus the presence of a constant discharge acted as a local irritation in each case. But in the first case everything, so to speak, arose *ab initio* from a local irritation, even the perforation itself. This case may be found recorded in vol. lxii. of the Medical and Chirurgical Transactions in a paper on "Disease of the Mastoid Bone" as follows:—

"In March, 1878, A. S., a married woman, aged thirty-two, whilst picking her left ear with a hair-pin, ruptured the tympanic membrane, and, soon after the accident, came under my notice as an out-patient of St. George's Hospital. With the exception of this lesion she was, in all respects, in good health. The rupture did not heal, and in a few days, from the fistulous opening thus established, there was a purulent discharge. A month later, after an attack of pain in the ear, which was followed by facial paralysis of that side, I again examined the ear and found a polypoid mass filling up the cavity of the tympanum, the membrane having by this time quite gone. She now came into the hospital. I removed the polypoid growth, and the pains in the ear, which had previously been considerable, passed off. Her stay in hospital on this occasion was three weeks. On July 31st, when she again applied for relief and was admitted, she stated that she had suffered from no further pain until within five weeks, when acute pain in the ear came on, and soon afterwards the parts over the mastoid process became swollen and tender. Two weeks ago, she said, the skin over the swelling broke down, and a little bloody matter was discharged. The ragged wound at that time observable was the result, and from this wound had been coming ever since a quantity of watery, very foul-smelling discharge. The skin over the mass was bluish, the tissues were infiltrated, and the edges of the wound were everted and hard. In short, the disease was to all appearance malignant. There were no enlarged glands, neither was there any history to be obtained of cancer in her family. No loose bone could be detected, although a large surface of bone was exposed. From this time she rapidly wasted; the wound increased in size until it formed a large cavity discharging most offensive matter, and she died on November 12th from exhaustion without any head symptoms or hemorrhage."

The origin of the perforation here was traumatic, but the origin of the cancer was a discharging surface. The same might be said of a case reported in the Pathological Transactions for 1850 by the late Mr. Cooper Forster, for although the boy was knocked down by a cab, and so received a violent blow on the head, he is said to have after this suffered from great pain in the ear, followed by facial palsy, so that, although the blow was the cause of the inflammation within the tympanum, the suppuration in this cavity preceded the appearance of cancer. I am able only to mention two cases in which this precedence of suppuration did not obtain. One

was in the last case which I saw—a woman about fifty years of age—whom I saw on February 15th of this year with Dr. Meek of Herne Hill. There was no history of inflammation of the tympanum. She had constant gnawing pain in the ear for three months, a partial facial paralysis coming on very gradually, and a most fetid discharge from the ear with occasional bleeding. The external canal was filled with a soft-looking, exuberant mass, which, when examined by a probe, had a spongy feel, and bled upon the most gentle manipulation. In short, it had all the appearance of a malignant growth. A distinct family history of cancer gave strong additional probability to the diagnosis. On removing the mass under ether a few days later it was found to be soft and pulpy. On examining portions under the microscope, Dr. Rolleston, the curator of the museum at St. George's Hospital, reported: "Sections show typical cell-nests composed of squamous epithelium surrounded by granulation tissue. The growth is therefore a squamous-celled epithelioma which has probably been growing for a considerable time." This was the character in all the cases I have seen except one, when I had not the opportunity of an examination. This patient died on May 4th, having developed a week previously some symptoms of cerebral irritation, but none of pressure. I learned this from Dr. E. H. Young's letter to Dr. Meek, Dr. Young having attended her at Okehampton up to her death. Like other cases which I had seen at the time of death, the growth had involved a considerable area. In one instance the internal carotid gave way, and the patient died in her sleep from suffocation. Amongst the six cases the one solitary example in which the disease did not start in the tympanic cavity it commenced by an ulceration over the mastoid process close to the junction of the outer ear, and proceeded inwards, eroding the mastoid.

There is not much more to be said about cancer of the ear, except to repeat that in one case only was a pre-disposition discoverable; in one case only did the growth commence elsewhere than in the tympanic cavity; that in two cases (and this includes Mr. Cooper Forster's) an injury started the suppuration; that they all died within six months of the discovery of the growth; that the proportion of cases in which a perforation is followed by cancer is extraordinarily rare; that there is only one case of tympanic origin that was not preceded by suppuration; that, considering how frequently the tympanic cavity is the seat of suppuration, this surface possesses a remarkable immunity from cancer; finally, that cancer of the ear is one of the rarest of diseases.—*The Lancet*, July 2, 1892, p. 17.

83.—A CASE OF CEREBELLAR ABSCESS SUCCESSFULLY TREATED BY OPERATION.

By Henry Percy Dean, M.S., F.R.C.S., Assistant Surgeon to the London Hospital.

[Mr. Dean says that, so far as he has been able to ascertain, this is the first recorded case of cerebellar abscess successfully treated by operation.]

F. B., aged fourteen, was admitted into the London Hospital under the care of Dr. James Anderson on April 20th, 1892. The patient had been quite well until five years previously, when she complained of pain in the right ear and this was followed by a "discharge of yellowish matter." Since then the girl has frequently complained of pain in that ear and every few months a discharge has been noticed. The present illness commenced three weeks ago with severe pain in that ear and in the right side of the head, especially in the mastoid region. Dr. Anderson gives the

following description of her condition on admission : "Patient extremely irritable and evidently in great pain, shrinking from the lightest touch over the right mastoid process, where the skin is boggy and dusky. She is only partly conscious, addressing her father, who is not present. There is no evident paralysis of limbs, face, or ocular muscles. Pupils dilated, equal, act imperfectly to light. There is well-marked double optic neuritis, high myopia, however, making it impossible to estimate accurately the amount of swelling. The right meatus is filled with pus, the left is clear and the membrane fairly normal ; knee-jerks normal ; no ankle-clonus ; heart and lungs normal ; no pain or swelling down the right side of the neck."

First operation.—As soon as possible the patient was taken to the theatre and chloroform was administered. On examining the right ear, it was found that the tympanic membrane had quite disappeared and that the middle ear was filled with flabby granulation tissue. A curved incision was then made over the swelling behind the pinna, and a small quantity of pus escaped. With a gouge and mallet the mastoid antrum was exposed and about half a drachm of pus evacuated. The bone was found to be very soft and it was scraped and chiselled away until the dura mater covering the lateral sinus was exposed. It was thought that the lateral sinus might be thrombosed, so a small hydrocele trocar was inserted into it, but blood flowed freely through the canula, which was then withdrawn. By carefully chiselling and scraping away the carious bone the tympanic cavity was laid open and the granulations scraped away. All traces of soft and carious bone were carefully removed. The tympanic cavity was freely laid open, so that a probe passed in at the external auditory meatus touched one passed in through the mastoid antrum. Antiseptic lotion (perchloride of mercury, 1 in 2000) could be easily syringed right through a considerable stream. A drainage-tube was then inserted into the tympanic cavity and the wound in the skin sutured in the usual way. It was thought by Dr. Anderson and myself that sufficient disease was found in the mastoid bone to account for the symptoms presented by the patient.

Condition after first operation.—On the night following the operation the patient slept well and on the next day her condition was much improved. Except for an occasional slight headache she continued to improve until April 30th. On April 25th her eyes were examined by Dr. Anderson, who stated that the neuritis was decidedly less marked. On April 30th it was noticed that she was rather drowsy, and that the temperature during the preceding twenty-four hours had not reached 98° F. This drowsiness increased during the following day, and when I saw her at 4 P.M. on May 2nd her condition was as follows :—Patient rather more drowsy than yesterday but answers questions rationally. She complains of slight headache on the right side of the head, chiefly in the mastoid region. No evidence of any motor weakness or anæsthesia could be detected ; knee-jerks present, not well marked ; no ankle-clonus ; no vomiting or nausea. Pulse 64, occasionally intermittent. At noon the temperature was 97.4°. Shortly after I left the temperature was taken and found to be 103.2°, and the patient then was very drowsy, occasionally complaining of severe pain in the head. Soon afterwards she commenced to vomit. Owing to a misunderstanding I was not sent for and the patient was not seen by me until the following day at 4 P.M., when the following note was taken. "Patient in a very drowsy condition, and only roused with difficulty ; no sensible answer could be obtained. She was frequently sick. Temperature 97.2° ; pulse 56, very irregular ; respiration very

irreglur in depth and rhythm. Pupils equal and widely dilated; knee-jerks present; no ankle-clonus." It was evident that the patient was suffering from grave cerebral compression, and abscess of the brain was strongly suspected. It was decided to operate at once.

Second operation, May 3rd (fourteen days after the first operation).—The patient was taken to the theatre and chloroform was administered. Her head was shaved and thoroughly cleansed. A semicircular flap of skin just above and behind the ear was turned down and a periosteal flap was then reflected. The pin of the trephine was placed one inch behind and half an inch above the centre of the external auditory meatus, and a disc of bone three quarters of an inch in diameter was removed. The lateral sinus exposed in the lower part of the dura mater above bulged considerably. The dura mater was incised and the brain protruded in a marked degree from the opening. A small hydrocele trocar was then inserted six times in different directions into the temporo-sphenoidal lobe, but no pus escaped. The second time the trocar was inserted the lateral ventricle was tapped and a few drachms of clear cerebro-spinal fluid escaped; but after this the brain did not return to any considerable extent within the skull. It was evident that the intracranial pressure was not due to meningitis or to an excess of cerebrospinal fluid. As the lateral sinus seemed to bulge more than usual a trocar was thrust into it. Blood flowed freely away, as at the previous operation. It was then decided to explore the right lobe of the cerebellum. With a Hoffman's forceps the bone was chipped away backwards and downwards for half an inch, so as to expose the whole diameter of the lateral sinus and the dura mater below it. The latter was then incised and the trocar thrust in. At the second insertion pus flowed freely away. A large trocar was then inserted and finally a pair of sinus forceps; over an ounce of pus escaped; an indiarubber drainage tube was inserted into the abscess cavity; the dura mater was carefully laid over the surface of the brain, but was not stitched. The operation was completed in the usual way and the wound dressed with sal-alembroth gauze and wool.

Condition after second operation.—Immediately after the operation the pulse was more rapid—110 per minute—and regular; the respiration was also regular. The pupils, which just before and during the operation were widely dilated and immobile, became moderately contracted. On the following day, May 4th, the patient's condition was distinctively improved. The wound was dressed and a slight amount of discharge was found. On May 5th Dr. Anderson saw the patient and made the following note:—"Neuritis of left side quite as marked as yesterday, perhaps slightly more so. The right disc on the inner side is also somewhat more woolly, but there are no hemorrhages as on the left side. Pupils widely dilated; pulse 80, somewhat irregular." The wound was dressed daily and the drainage-tube was gradually shortened. The patient's condition rapidly improved. On May 7th Dr. Anderson made the following note: "Neuritis of left side distinctly less marked; edge of disc can be easily distinguished; some improvement also on the left side." The drainage-tube was removed on May 10th, and on the following day Dr. Anderson wrote the following note: "Neuritis in both eyes almost completely subsided; hemorrhage in left fundus rapidly absorbing." The patient steadily continued to improve, and on May 16th she got up for a short time. On May 19th the wounds of both operations had completely healed up. There was a slight discharge from the ear, which was syringed out daily. On May 30th the patient was quite well.—*The Lancet*, July 30, 1892, p. 251.

[See also "Otitis Media" in *Synopsis* of this volume of the *Retrospect*.]

OBSTETRICS AND GYNÆCOLOGY.

84.—ON SIMPLE CHRONIC MASTITIS.

By H. B. Robinson, M.D., F.R.C.S., Hunterian Professor of Surgery and Pathology at the Royal College of Surgeons, England.

[The following is taken from one of the Hunterian Lectures on certain diseases of the breast.]

The first form of chronic inflammation is that associated with no specific infective organism, but is in connection with a local cause, and its development is, as a rule, a localised one. In a great many of the cases suppuration takes place, and from this being embedded in the breast substance it leads to great perplexity in diagnosis. It is usually termed the "chronic encysted abscess." As many pathologists hold that the presence of a chronic abscess not due to "tubercle" is an anomaly, the *locus standi* of this chronic abscess may be questioned. But I think we must recognise that in the breast we have an exception, and that this chronic inflammatory affection is only in relation with local causes.

Its causation is in most cases due to lactation. It may occur towards the end of a period of active lactation, or more especially after weaning; it may also develop after abortions or miscarriages. Thus it agrees with acute mastitis, but differs markedly from it by its chronicity of development. It is difficult to say how early we should class a case of mastitis as chronic; certainly only if it has existed for several weeks. Tillaux makes an intermediate class of "cool abscess" for those in which there is doubt. It has been noticed that indurations left after a previous lactation may suppurate at a subsequent confinement. Bryant considers that lactation is only occasionally a cause.

Injury may be a cause, and suppuration is not nearly so frequent as in that due to lactation, if it occurs at all. From a blow we may have a small localised induration from the first, which may persist for an indefinite time, but loses its tenderness. A hæmatoma after absorption may leave such an induration. Lucas-Championnière considers that the pressure of stays is responsible for some of these inflammatory swellings, but there is no evidence that they occur more frequently at the lower part of the gland.

The clinical forms and their course are subject to great variation. As the lesion occurs in relation with lactation it will be found towards the end of that period, or after weaning, that one lobule of the gland becomes a little painful, hard, and with well-defined outline towards the periphery of the breast. The skin will be quite free over it, but on pressure deep tenderness may be elicited. This may remain *in statu quo* for an indefinite time, ultimately undergoing absorption so complete that resolution has taken place. In the next group we find that the inflammatory infiltration remains behind as an induration which has lost the deep-seated tenderness, and may practically become permanent. It is probably to this class that some of the cases described by Sir Astley Cooper as "chronic mammary tumour" belonged, namely, those that become absorbed during a subsequent pregnancy and lactation. Although he applied the term to fibro-adenomata, it is difficult to suppose that these firm fibrous tumours *did become* absorbed under the same circumstances. The usual sequel

is for the nodule slowly to enlarge, involving more breast tissue at its periphery. It still, however, maintains a fairly defined outline, and may be of a somewhat oval form, with its axis directed to the nipple. This increase in size may be attended by very little or no pain, but the tenderness on deep pressure, a symptom laid great stress upon by Sir Astley Cooper, will be increased. The size it reaches varies very much. When deeply placed, especially if towards the periphery of the gland, there will be no adhesion of the skin and no retraction of the nipple, and the mass may have a cake-like feel suggesting a tumour. Castex and Réclus comment upon its rounded margin, and say that this sign is absolutely diagnostic; other observers, however, are not at one with them on this point. It may be distinctly made out that the lump is part and parcel of the breast substance. Should the inflammation be central, and yet deeply situated, the nipple will be very likely retracted, owing to the dragging on the ducts passing through the inflammatory mass. It may now remain deeply placed in the gland, but yet soften in the centre without there being any œdema or adhesion of the skin over it; the tenderness will possibly be more marked, but the fluctuation cannot here be obtained owing to the extreme thickness of its walls; these are the cases leading to the suggestion of a solid tumour. If the inflammatory swelling comes nearer the surface there may be œdema and some skin adhesion, but redness is quite the exception. Fluctuation may now be detected, and if the mass is not incised the skin may at least give way, setting free a thick creamy pus, but without any caseous particles in it. The glands in some cases may enlarge, but this is rare. Lecas-Championnière quotes a case where the axillary glands enlarged with one of these indurations and suppurated, without any change taking place in the lump in the breast. Réclus noticed suppuration to ensue after an indurated nodule had been quiescent for six years. Abscesses may be multiple, and may intercommunicate by small openings, causing complete riddling and disorganisation of the gland, or may remain quite isolated from each other.

The diagnosis has to be made—

1. *From a Localised Nodule of Chronic Interstitial Mastitis.*—A consideration of the cause may help us, for whereas the disease under discussion is usually met with in relation with active changes in the gland, the interstitial disease occurs mostly about the period of involution. The nodule of interstitial mastitis has never adhesion or œdema of the skin, and has not the characteristic tenderness. The other breast should be examined, for a lesion in the opposite breast is practically confirmatory of chronic interstitial mastitis.

2. *From Tuberculous Mastitis.*—In both this and the simple mastitis we may have œdema and adhesion of the skin, but in tubercle we have the margin not so well defined; we should expect less tenderness, and we should have glandular enlargement as a more constant feature. The characters of the pus on incision will differ, as in tubercle it contains cheesy masses, whereas in the simple chronic abscess it is thick and creamy. A history of recent lactation favours the simple mastitis, but a history of tubercle in the family may establish the diagnosis as the tuberculous form.

3. *From Tumours.*—Unfortunately errors in diagnosis have led to the sacrifice of the gland on the supposition that a solid tumour was being removed. Perhaps it can be more often confused with an ordinary scirrhus, especially if the inflammatory swelling be accompanied by glandular enlargement, as in both we may have a localised hard tumour following a blow, with adhesion of the skin and retraction of the nipple. Sir Astley Cooper describes two very well-marked cases where patients were sent to him with hard tumours in the breast supposed to be scirrhus, but on care-

ful examination he found some deep-seated fluctuation with tenderness on pressure, thus establishing the diagnosis which was confirmed on incision.

Points in making the diagnosis would be :—(1) whether the lump had formed in relation with lactation ; (2) presence of deep tenderness on pressure ; (3) the age of the patient and the rate of growth ; (4) the margin of the growth whether well-defined or not ; (5) the resistance of the tumour, if elastic or of a woodeny hardness.

Confusion with the encapsuled tumours is not likely, as they are freely movable in the gland, but from a cyst diagnosis is not at all easy. Here we should get the history of lactation and the thickening in the breast around, and perhaps the association of adhesion and œdema of the skin.

The prognosis in these cases of course varies with the clinical developments. Should an indurated nodule result, and the local tenderness be lost, then we may say that the lump itself is not harmful, and may ultimately disappear. When suppuration has taken place, with the exit of the pus, if contained only in one cavity, the inflammatory mass soon resolves. If the cavities are multiple and the drainage defective, there may arise sinuses which take a very long period to heal up. Whether any more serious sequel, as carcinoma, arises, it is difficult to say, but there is no evidence to support it.

Treatment.—In those cases where indurated nodules are left behind their resolution may be aided by local absorbents. Many of these were the cases in which pressure caused the disappearance of a supposed cancer, and it might accordingly be tried. Where the diagnosis is at all uncertain, remembering the experience of other surgeons where amputations have been performed unnecessarily, exploration by a grooved needle or by incision should not be omitted. The success obtained by this will guide our further action. If it is inflammatory, a free incision with packing the cavity from the bottom is to be pursued. If the case should be one in which sinuses are present, communicating with ragged cavities, these may be laid open. If the breast should be very disorganised, and especially if the patient is reaching the end of the child-bearing period, extirpation might be entertained.—*British Medical Journal*, June 11, 1892, p. 1237.

85.—ON INTRA-VENOUS INJECTION OF "NORMAL" SALT SOLUTION FOR THE GRAVE HEMORRHAGE OF MIDWIFERY.

By H. S. Spencer, M.D., Assistant Obstetric Physician to University College Hospital.

[Dr. Spencer records in full detail eight cases of severe hemorrhage in which the saline solution was injected. We are able to reproduce here only the headings of Dr. Spencer's cases and his remarks upon them.]

Case 1.—Multipara ; adherent placenta ; severe post-partum hemorrhage ; fetid ischio-rectal abscess at time of labour ; transfusion of thirty ounces of saline fluid ; recovery.

Case 2.—Accidental hemorrhage ; transfusion ; recovery ; relapse ; a second transfusion ; recovery.

Case 3.—Accidental hemorrhage ; transfusion of saline fluid ; death.

Case 4.—Accidental hemorrhage ; transfusion ; recovery.

Case 5.—Contracted pelvis ; old scar in cervix ; induction of premature labour ; version ; laceration of lower segment into broad ligament ; transfusion ; death.

Case 6.—Complete placenta prævia ; first hemorrhage (very severe) at term : external version ; embryotomy ; transfusion ; death.

Case 7.—Adherent placenta ; post-partum hemorrhage : transfusion ; *relapse ; second* transfusion ; recovery.

Case 8.—Severe accidental hemorrhage; patient moribund one hour and a half after delivery; transfusion of forty ounces of saline fluid; death.

Of the eight cases, it will be seen that four recovered and four died. Of those that died, two (cases of accidental hemorrhage) are of no value in estimating the effects of the treatment, for in one case the patient was in a hopeless condition, and in the other was practically dead; both died when a few ounces had been injected. Of the other two cases, one had an extensive laceration of the lower segment of the uterus and a hæmatoma of the broad ligament, and died rather from shock than loss of blood; the other (a case of central placenta prævia) had also a lacerated cervix, and I think might possibly have recovered if a second injection had been made. Of the cases that recovered, two were examples of adherent placenta, with post-partum hemorrhage, and two were cases of accidental hemorrhage; one of these women died in her next labour from a repetition of the accident. In two patients the operation was performed a second time, making six successful operations in all. The eight cases described above bear but a small proportion to the number of cases treated for hemorrhage. During the last five years I have endeavoured to see all cases of acute ante-partum and all grave cases of post-partum hemorrhage occurring in the hospital maternity. Of the former alone (excluding miscarriages) I have seen about one hundred cases, including forty cases of placenta prævia. Many patients I have seen almost pulseless and in a serious general condition after the loss of large and small quantities of blood; twice I have seen patients recover without transfusion after hemorrhage so severe as to cause convulsions; all except the above-mentioned have recovered with the ordinary remedies, and in no case has intra-venous injection been resorted to until the ordinary methods of treatment have failed. Before performing the operation the bleeding should be definitely controlled. The apparatus I have employed for the purpose of injecting the fluid is shown in the engraving. It consists of a glass bottle holding two pints, with an indiarubber stopper, through which a thermometer, a thistle-headed tube (for the purpose of replenishing and for the admission of air) filled with antiseptic wool, and a delivery tube, to which are attached about four feet of india-rubber tubing and a canula made of vulcanite or glass. The apparatus, having been washed with a 5 per cent. solution of carbolic acid and with boiled water, is filled with hot boiled distilled water containing one drachm of sodic chloride to the pint. Instead of using the solid salt, time and trouble may be saved by employing a preparation of Mr. Gerrard's, the dispenser to the hospital, which consists of sterilised and stoppered glass tubes containing two drachms of pure salt in solution. When the bottle is filled the solution is maintained at a temperature of 105° by placing the bottle in a vessel, into which hot or cold water is poured from time to time. The solution is made to run by blowing with the mouth through the wool-stoppered tube, and raising the bottle about two feet above the patient's arm. A longitudinal slit is then made in the skin over the median-cephalic or basilic vein; if assistance is not at hand, it is better to make a transverse slit through a fold of skin, as the elasticity of the skin then makes the wound gape; the vein is isolated, and three fine silk ligatures are

passed under it. The lower of these is tied, the vein picked up with forceps and opened by a scalpel, and, the solution having been set running, the canula is inserted and tied in with the middle ligature. The solution should be allowed to flow slowly, and the bottle should not be raised too high. Thirty or forty ounces will in nearly all cases be sufficient to inject, and the operation should take from twenty minutes to half an hour. In case of relapse the operation may be repeated on the other side. After the operation the canula is removed, the vein tied with the upper ligature, and the wound closed and a back splint applied. If necessary, stimulants may now be administered with greater benefit than before the operation. In conclusion, I would express my belief that the operation properly performed is neither attended by danger nor followed by evil consequences; that it will afford remarkable relief in cases of severe hemorrhage, which are not complicated by "shock," after all the ordinary methods of treatment have failed; and that in the gravest cases of ante-partum hemorrhage it would be well to inject the solution before delivery is effected.—*The Lancet*, June 18, 1892, p. 1357.

86.—PERITONITIS: ITS NATURE AND PREVENTION.

By Lawton Tait, F.R.C.S.Ed., L.R.C.P.Ed.

[The following contains the important parts of a paper read before the Harveian Society of London. After reviewing the functions of the peritoneum; the nerve influence in inflammation; sepsis as a cause of peritonitis; the functions of the great omentum, the writer observes with regard to washing out and sponging the peritoneum after operations:]

I gave up the use of sponges as far as possible, and took to washing the cavity out by dashing in large quantities of warm water, gradually evolving the neater and more effective method by the trochar nozzle. This again brought upon me strong condemnation from various quarters, but I went steadily on as I found my cases recovering, until it became evident that practically no case was hopeless, however bad it looked, providing the bleeding was stopped and the peritoneal cavity was properly washed out and drained. When I hear some authorities say that they never wash out and never need to drain, I merely conclude that they lose cases which I save, and that they put their ill results down to the omnipotent germ.

As a part of the same argument, I have to record my observation that the opening of the abdomen in cases of ascitic effusion due to the papillomatous alteration of the peritoneal surface, the careful washing out of it and its subsequent drainage, if carefully and tenderly performed, is an operation as absolutely devoid of risk as an operation can be; yet I never trouble my head about excluding germs. I have seen very few deaths in some hundred of cases, and not one in which the result was reasonably attributable to the operation, certainly not a single instance in which it resulted from the onset of acute peritonitis.

Nervous origin of peritonitis.—I therefore conclude that peritonitis, after abdominal operations and injuries, begins in a stimulus, just as in the web of the foot of a frog. I do not think that there can be a doubt that nerve injury enters largely into the explanation of this. Next comes the period of mechanical congestion and stasis, and at this point we enter upon a consideration of the clinical symptoms of peritonitis; and here let me say once for all that I absolutely exclude from my own arguments and that I will not admit for the arguments of anyone else any deductions

made from observations which are not absolutely verified by some kind of intraperitoneal investigation, either ante- or post-mortem. The peritoneal cavity is a region in which the unexpected is so constantly turning up that nothing but actual physical experience inside it can be admitted as serious argument.

The symptoms of peritonitis.—The question now comes in order what are the symptoms of peritonitis? My answer is that they are very numerous, very various, and very serious, but that there are none, no not one, nor any group of them, upon which absolute reliance can be placed.

Temperature and pulse.—Of late years we have had much reliance placed on the records of temperature and pulse for clinical purposes, and in many diseases their value is undoubted. But for peritonitis they are not only untrustworthy, but may become positively misleading. Some years ago I performed a trifling operation on the uterus. It was only the insertion of a solid piece of sulphate of zinc, and I had done it in this patient some ten or twelve times before. On the last occasion it made her ill for some days, and two of us watched her with great care. As we had a perfectly, or almost perfectly, normal temperature and pulse record, we absolutely refused to regard the ailment as serious, and we were not prepared for a quite sudden termination of the case about the tenth day. On post-mortem examination we found about a pint of pus in the abdomen, and I do not suppose I have ever had so damaging an experience as was then made for me by my ignorance of the fact that acute fatal peritonitis may run its course and yet the temperature never rise a full degree above normal, nor the pulse be increased beyond 90 beats in the minute. I have been more alive to the fact since; yet, on the contrary, I can show records after operations of the temperature at 106° and the pulse at 160—even at 200, where recovery took place and the question of peritonitis was never seriously entertained. Do not for a moment imagine that I recommend you to break your thermometers and discontinue your pulse glasses, but do not put exclusive faith in them.

Alteration of face.—There are two signs so constantly present in peritonitis that I regard them always with anxiety, even though their presence is not to be taken as infallibly indicative of the inflammatory danger. I mean alteration of the patient's face and distension of the intestines.

The alteration of the patient's face is deceptive, because many fidgety people, and those who bear pain badly, will put on a face indicative of danger when there is none; and the habit many practitioners have of saving their patients pain after an operation by the administration of opiates is a source of great danger, for its masks this facial alteration at the very time when its aid is most needed. Pain, though by no means a pathognomonic sign of peritonitis, is pretty constantly and markedly present at the onset. An opiate, therefore, conceals the first and most readily appreciated indication of danger. Sometimes, however, an opiate must be given after an operation, and then I always give it by the hypodermic needle, as that avoids the constipating effect of opium by the mouth, and leaves me my great means of assistance ready for use—I mean purgation. The alteration of the face I most fear is not one of pain, but of anxiety, accompanied by a tendency to chatter and ask questions. If a patient will be quiet and not talk she is pretty sure to recover. If she persistently chatters she is pretty sure to die. On relief of the symptoms, which practically means getting the bowels to act, the face becomes placid and the patient quiet.

Intestinal distension.—The symptom which I most dread is intestinal distension, and that all my clinical aids, assistants, and nurses are con-

stantly on the watch for. I never saw fatal peritonitis in which distension was not a prominent feature. I never said that every case of intestinal distension after an operation represented a case of peritonitis, yet this is the manufactured view which an enthusiastic young assistant surgeon of a well-known metropolitan hospital set himself as a task to combat some two years ago. But as all cases of peritonitis have that as a symptom—and an early symptom as well as a very distressing one—my rule has always been *obsta principiis*, and my empirical rule has been a most successful one. My mortality from peritonitis has dropped *pari passu* with my complete establishment of the practice of anticipating the peritonitis as soon as I see distension. According to my own rule I am, of course, not entitled to say that there was peritonitis in any of these cases, or that it was cured by purgation; but when I see cases with all the symptoms which are ever seen in peritonitis, and find the symptoms yield in those in which my purgative treatment is efficient and in time; and, on the other hand, when I see similarly affected cases in which time has been lost and purgation not effected, and see these die, and then peritonitis is found on post-mortem examination, I am strongly disposed, as is the fashion in medicine, to argue *post hoc ergo propter hoc*, to believe that such cases do not have peritonitis, and that most of them recover. Here I may be wrong, but this I do know, that the moment we see distension we purge, and if we succeed in purging the patient recovers; if not she dies. Therefore I am content to say that at least we prevent peritonitis, and it is for that purpose that my routine treatment is directed.

The cause of death in peritonitis.—At this point I am brought back to my physiological beliefs about the peritoneum, and I say at once that the cause of death in peritonitis is a disturbance of the ebb and flow of the serum stream of the peritoneum, and the disturbance of the function of the liver. In fact, the liver is the lethal organ in peritonitis.

In peritonitis the first serious symptom—the symptom which when fully established after the occurrence of distension generally means a fatal issue—is bilious vomiting. At first the character of the vomit is that of simple gastric catarrhal flow, faintly coloured with bile; this rapidly alters to such an extent as to show that more and more bile is passing into the stomach, and the quantity of the ejection rapidly increases. If a resolution of this very fatal symptom is brought about, the quantity of bile diminishes, and finally disappears. If a favourable issue is not to be the result, the vomit rapidly alters in character till the too familiar coffee-ground matter, which is due to hemorrhagic flow from the liver, appears. All through the course of the case the general distension of the abdomen increases, till it acquires a drum-like hardness, the bowels remain obstinately quiescent, and the patient dies.

The course thus described is not one without exception in almost every particular, but it is an accurate description of the great bulk of deaths from peritonitis after operations, and the course of the cases generally dates from the first appearance of the distension (towards the close of the second day) till the final issue between the close of the fourth and fifth days; and so constant has been my experience of time in this matter that for years I have regarded the fourth night as the critical time for all abdominal sections except those involving the use of the clamp in hysterectomy, and these never can be regarded as free from the risks of peritonitis till the stump has come off and the wound nearly healed.

The Prevention of Peritonitis.—Years ago I was driven to the determination to discontinue absolutely the use of opium by the mouth after abdominal operations, for two reasons: First, its action on the intestines is

most certainly to modify and even suspend vermicular movement; and secondly, it masks the real condition of the patient. One dose of morphine, given under the skin immediately after the operation, for the double purpose of relieving pain and modifying shock, is all that my patients ever get, and the great bulk of them do not get that.

Another matter regarding which my convictions were altered very early in my practice was that strange and unaccountable thirst which inevitably follows the opening of the peritoneum, even in a mere explanatory incision as much as in a protracted and severe operation. Cut down through the abdominal wall to the peritoneum, without damaging the membrane, and there is no thirst—at least, it is rarely seen, and is then very transient. But open the peritoneal cavity and you have an invariable symptom—intolerable thirst lasting for twenty-four to sixty hours. At first I thought that this was a clear natural indication that the patient should have plenty of fluids and plenty of ice. But I have long since come to regard ice as one of the things which should be banished absolutely from the sick room. It never acts in any other way than to increase thirst, and the best thing to allay thirst after an abdominal section is warm water. Gradually I found it wise to diminish the quantity of fluid after an operation to the vanishing point, and now I keep my patients for as near forty-eight hours as may be in absolute starvation—this being modified, of course, by age and previous exhaustion. I have, indeed, come to regard this thirst, not as an indication for the administration of fluids, but, on the contrary, as one indication that the traumatism of the peritoneum has altered its flow and ebb in some strange way, and that the less fluid there is about the sooner will the natural rectification of the process be effected. Certain it is that since I have adopted this policy, sickness after operations—I do not mean mere anæsthetic sickness, but the dreaded sickness of the second and third day—has almost disappeared, whereas formerly it was almost a routine symptom.

Again, if sickness sets in on the third or fourth day, or at any time after, all food (and in that I include water) is absolutely stopped for twelve hours or even longer if necessary. I was driven to this by the uniform experience that all drugs generally employed for the arrest of vomiting were, under the circumstances of my practice, absolutely futile; that any food given came back only altered by biliary admixture. Further, I was influenced by the perfect certainty that nothing could possibly be digested or absorbed by the stomach so long as bile was being poured into it. Let me advise everyone dealing with abdominal operations to permit nothing vomited by the patient to be thrown away till he has seen it. This is a rule for my nurses, of which I permit no breach, for I often discover the most risky over-feeding of patients during their convalescence by zealous nurses or foolish friends. It is here that most especially is shown the great value of the treatment of such cases in a private hospital over the undisciplined conduct to which they may be subjected in a private house. The friends of patients are always the source of infinite danger, and give far more trouble than the patient herself.

I have a belief that the starvation and withholding of fluid prevents the mechanical stasis of the circulation in the intestinal coats, which appears to me to be the initial stage of the fatal process of peritonitis, and this preventative measure I endeavour to assist by stimulating the peristaltic movement. If this mechanical stasis does occur it originates always in the transverse colon, and I cannot help seeing in this the agency of the great omentum, and therefore my first efforts are directed to this part of the canal in the form of stimulant enemata. I have tried a vast number

of different kinds of enemata—some suggested by my own thought and others suggested by ingenious friends—but I have always gone back to soap and turpentine. It is the business of any nurse watching one of my abdominal sections to note every six hours a set of four conditions—the pulse, the temperature, the occurrence of distension, and the passage of flatus *per anum*. So soon as the latter is freely and naturally established our anxiety ends, though our watchfulness is unremitting. The want of such passage for twenty-four hours after an operation, especially if accompanied by the slightest suspicion of distension, is dealt with without fail by the nurse herself, on her own responsibility, by the administration of a turpentine enema, unless she has been especially warned not to give it for some special reason, such as a rent in the rectum. If the turpentine does not answer the nurse reports, and a mild saline purgative is ordered —generally a seidlitz powder—and this is repeated every four hours until it acts. If there should be any especial anxiety, such as the occurrence of vomiting or the presence of a clamp, 5 grains of calomel are given instead of the seidlitz powder.

If the distension increases we never rest till we have had the bowels moved, and then our anxiety is nearly always at an end and our efforts rewarded by recovery. But above all things there must be no time lost, and nobody who may be called into consultation by anxious friends must be permitted to write a prescription and try some favourite mixture. So soon as this is threatened I repudiate all responsibility and retire from the case.

There is nothing in all this that I have not published years ago, but I am bound to take some trouble to repeat it on a favourable opportunity such as this, because it has been grossly misrepresented and misunderstood. I have never said that the purgative treatment will cure peritonitis, for peritonitis, once it is completely established, is a practically incurable disease, and almost uniformly fatal. But when it is completely established I do not know. Of this I am certain, granting a large number of cases going on to peritonitis, after operations or from any other cause, if you subject the patients (not the peritonitis) to the purgative treatment, the number who will go on to incurable peritonitis will be absolutely fractional compared to what will be the result if they are left alone or submitted to any other treatment which has come under my notice.

When called in to a case of well-established peritonitis I always urged a trial of this treatment, because the stage may not have passed at which it may still be effective, but the chances are that it has. I generally find that the time has been lost, and that the irresistible tendency of our profession must be to treat the prominent symptoms (pain) with the only drug on which implicit reliance can be placed (opium) has put the purgative treatment beyond the reach of trial.

Time as an Element in Prognosis.—I have already said that time is the most important element in a case of peritonitis from another point of view, and to that I now propose drawing your attention. Briefly, it is my opinion that the outcome of a case of peritonitis depends far less on the severity of the symptoms than on the time over which they run. Thus symptoms may be quite parallel in two cases, and yet one will die on the fifth day and another will go on to the twelfth and get well, the symptoms lasting all the time with almost initial severity. The same thing is known about tetanus. My experience of this peculiarity of peritonitis is that it is not limited to traumatic peritonitis, but is seen in every kind, including that which we know as idiopathic peritonitis.—*British Medical Journal*, November 12, 1892, p. 1046.

87.—ON THE TREATMENT OF POSTERIOR ROTATION OF THE OCCIPUT DURING LABOUR.

By Edward P. Davis, M.D., Obstetrician to the Philadelphia Hospital.

If we seek to ascertain the factors upon which anterior rotation depends, we find them to be essentially three in number: First, a normal proportion in size between the head and the pelvis; thus, a small head in a small pelvis favours normal rotation, and a large head in a large pelvis is likewise favourable. Secondly a fixed position of the head is essential to anterior rotation of the occiput. Thirdly, the forces of labour must be normal, namely, the contractions of the uterus and the resistance afforded by the pelvic floor. If any one of these factors is notably deficient, a perversion of rotation is very likely to occur.

Abnormal rotation of the occiput is a source of danger to the life of the child and to the integrity of the mother's tissues and also to her life. The child's life is jeopardised by long-continued pressure during prolonged labour, resulting in visceral hemorrhage and death. The mother's tissues are endangered by reason of the abnormal prolongation of the pressure of the head during efforts at rotation, while her life is imperilled by the added risk of septic infection and exhaustion.

The treatment of such abnormal rotation would rationally consist in an effort to supply the one or more factors already described that may be deficient or perverted. Although the physician cannot remedy disproportion in size between the head and the pelvis, the sooner he becomes aware of such disproportion the better for his patient. No woman should be attended during her first pregnancy unless her pelvis has been measured by her medical attendant. In making this statement we do not insist upon an elaborate measurement of the pelvis, but urge that three external measurements be invariably made. These are: the external conjugate, the distance between the anterior superior iliac spines, and the distance between the outermost points of the iliac crests.

Flexion of the head, necessary to secure anterior rotation, may be promoted and maintained by the employment of the hand, accompanied by the use of forceps. When the physician discovers that the occiput is turning posteriorly, while the head is but slightly flexed, if the patient be anæsthetised sufficiently to permit the introduction of the hand, the occiput may then be drawn down, or the chin pushed upward, and flexion secured. If this effort fails, flexion may be secured by axis-traction with the forceps, as will be described in a succeeding paragraph.

Flexion and anterior rotation may be further facilitated by the posture of the patient; thus, if the back of the child be turned toward the left side of the mother and the occiput tends to rotate posteriorly, the mother should be turned upon her left side, with her thighs flexed and her shoulders bent slightly forward. This posture causes the fundus of the uterus, containing the body of the fœtus, to fall toward the left side of the mother's spinal column, as it will be remembered that the uterus normally occupies a position of right lateral obliquity in the abdomen of the mother. This movement of the fundus from right to left, by gravitation, favours the turning of the occiput from left to right, and thus anterior rotation of the vertex is expedited. If the child's back is directed toward the right side of the mother and the occiput seems about turning toward the sacrum, the mother should be placed upon her right side, with her body flexed as has been described and her right side propped up from the bed by means of pillows. Gravitation of the fundus is thus favoured, and anterior rotation is more likely to occur.

The posture often instinctively assumed by women, namely, that of kneeling strongly forward upon the bed, is one that favours flexion and anterior rotation. The fundus of the uterus falls forward, the head tends to flex and descend into the pelvic cavity, and the long axis of the fœtus corresponds more perfectly with the direction of the axis of the pelvis.

In addition to posture, constant external pressure against the vertex sometimes favours anterior rotation of the occiput. Thus, I remember having seen a case so treated in the wards of a foreign hospital; the patient was placed upon her side and a small bag filled with sand was laid upon the abdomen against the vertex.

We now come to consider the last of the three conditions upon which anterior rotation depends, namely, the expulsive force of the uterus and abdominal muscles, and the resistance of the pelvic floor. If the former is deficient, a suitable stimulant to the nervous system is indicated; thus tea, coffee, alcohol, and quinine are most available. It is rarely necessary to employ ergot, and exceptionally the faradic current of electricity has been found useful. A narcotic that causes labour to cease absolutely for a time, while the patient sleeps, has often been found of value, the patient on awakening rousing to renewed activity. Direct stimulation of the uterus by rubbing the abdomen, and by pressure exerted upon the head in the axis of the pelvis, may carry to a successful parturition a labour lingering in its last stage. Again, anæsthesia of a moderate degree may temporarily remove the depressing influence of pain and cause renewed uterine activity.

While such expedients are frequently successful, yet the forceps is very often the last resource of the practitioner. In this, as in all forceps deliveries, two methods are to be distinguished. One is that which all that use forceps desire to carry out, namely, the application of the blades accurately to the side of the child's head; this requires a forceps modelled after French instruments, or shaped like the familiar blade devised by Davis, of London.

The other method of applying the forceps is that recognised as a valuable expedient, although not the ideal method of operating; this is the application of the forceps to the sides of the pelvis, and suggests the employment of an instrument modelled after the forceps of Simpson, of Edinburgh. In the first instance, forceps and head rotate together; in the second, the head rotates in the forceps, the blades remaining in the axis of the pelvis at the sides of its cavity. The first method requires for its safe performance a very accurate diagnosis of the precise location of the occiput; this will usually require anæsthetising the patient and the introduction of nearly all or of the entire hand within the vagina. In the second method the occiput may not be definitely located, although its absence from its usual location may have been determined. The forceps is then applied to the side of the pelvis, traction is made gently with the pains, and between the tractions the grasp of the forceps is relaxed, the head rotating within the forcep-blades, so that each application is virtually a new one.

Neither use of the forceps is skilful that does not at the same time employ axis-traction. All obstetricians are familiar with the simple manipulation of performing axis-traction with the hands, grasping the handles of the forceps with one hand and raising them, while the other presses downward and backward upon the instrument at the shank. If the case be a difficult one, this requires for its successful performance very considerable strength in the hands and wrists. The axis-traction forceps of Tarnier and those modelled after it represent an established method of

securing axis-traction in these cases. The Tarnier instrument, however, is not convenient for the ordinary exigencies of confinement; it is too heavy, too large, and too expensive. Poullet, of Lyons, in a thesis described the application of the tapes as tractors to secure axis-traction. Many had already employed this, or a similar device, by passing a tape or cord around the shank of the forceps, and forming a loop into which the foot of the operator could rest, and by downward traction assist in the delivery. Poullet has modified and made more simple his use of the tapes, as shown in his most recent instruments. I applied the tapes, as first suggested by Poullet, to the Simpson forceps for the purpose of meeting the indications in those cases in which the occiput tends to rotate posteriorly, and in which the Simpson forceps applied to the sides of the pelvis seems most clearly indicated. The tapes have been similarly attached to the Davis forceps for cases in which that instrument seems most suitable; my experience leads me to prefer the Tarnier forceps in cases in which the instrument can be applied accurately to the sides of the head.

In using the forceps with the tapes no extra device for holding the instrument tightly upon the head is necessary. As traction is made, the tapes tend to draw the blades together; thus, in using the Simpson forceps, care should be exercised that the blades do not approach too closely.

In using either form of instrument, but moderate force is needed to effect delivery, provided axis-traction be made; the failure to perform axis-traction accounts for many of the difficult and dangerous cases of forceps delivery. The head should be kept thoroughly flexed during its exit from the genital tract; the use of axis-traction has largely done away with that function of the forceps said to favour rotation. No one would attempt to forcibly twist a vertex in the pelvis. The difference between traction in the axis of the pelvis and the attempt to deliver without such traction can never be appreciated without a practical experience with the two methods. The former is a difficult, tedious, and laborious task; the latter is a matter of much less difficulty.—*Medical News*, July 9, 1892, p. 34.

88.—ON THE TREATMENT OF PLACENTA PRÆVIA.

By ARCHIBALD DONALD, M.D., M.R.C.P., Surgeon to St. Mary's Hospital, Manchester.

[Dr. Donald gives an analysis of twenty-seven cases of Placenta Prævia, and then addresses himself to the treatment of the conditions as follows:]

I believe that nearly all obstetric specialists, and a large number of practitioners, now guide their treatment of placenta prævia by this principle, and I am convinced that the more it becomes the rule for practice the better the results will be. It was a surprise to me that Dr. Robert Barnes should, so recently as 1887, reiterate his views as to the value of partial separation of the placenta in causing arrest of the hemorrhage.

This method appears to me to be theoretically wrong. In cases of placenta prævia the placenta is situated on the lower uterine segment, which, according to researches of late years, is more or less passively dilated during labour by being pulled on by the strongly acting muscular tissue of the body of the uterus; in other words, the weak-walled lower uterine segment behaves in labour as if it were part of the cervix. Consequently, the blood-vessels in this segment are not compressed by muscular contraction in the same way that those in the body of the uterus are. It is owing to this that post-partum hemorrhage is so common in cases of placenta prævia. A continuous oozing of blood may come from the flabby lower uterine segment, even when the upper part of the uterus is contracted. The arrest of the hemorrhage, which sometimes occurs during labour, is to

be explained by the pressure which the fœtus exerts on the bleeding area, and not by muscular contractions at the placental site. The arrest of hemorrhage after labour is due partly to the resiliency of the tissues of the lower uterine segment, which are no longer put on the stretch, and partly to the fact that the upper part of the uterus is firmly contracted, and therefore the force of the circulation and the amount of blood in the uterus, as a whole, is much diminished, and thrombosis is favoured.

But there is a much more powerful argument against this method than the theoretical one, and that is, that in practice it repeatedly fails to check the hemorrhage. I have given it a fair and conscientious trial in several cases, and in none of these could I perceive that it had the least effect of a beneficial kind. It is my opinion that all teaching which tends to make men rely on the separation of the placenta for the control of hemorrhage is pernicious, and fraught with danger.

If it be granted that the point to be aimed at is to obtain control over the labour as speedily as possible, how are we to proceed in individual cases? The most generally applicable plan is to turn by the combined method, since for this it is sufficient that the cervical canal be open to the extent of admitting two fingers. It may happen that the case is not seen until the os is fully or almost fully dilated. Under these circumstances, combined version is impossible or uncalled for, and we have to fall back on internal version or forceps, or, if the pains are strong and the head coming down, we may even wait for nature to complete delivery.

If we have succeeded in reaching a foot by the combined method, and in hooking it through the os, the case must not then be left to nature. It is generally stated that the hemorrhage ceases when a leg is brought into the vagina, but this statement is not strictly accurate. The bleeding comes not from the cervix, but from the cup-shaped lower uterine segment above the internal os. If the labour pains are good the breech of the fœtus is forced down against this bleeding surface. If, however, there be uterine inertia, the bleeding still goes on. It is true that no blood may escape externally if the os fits tightly round the leg which has been drawn down, but there may be serious internal hemorrhage. A case occurred in the hands of one of the assistant medical officers to St. Mary's Hospital which illustrates this danger well. He had turned with little difficulty by the combined method, and brought a leg into the vagina. Then, acting on the advice given by some authors, he left the case to be terminated by the natural powers. There was a complete absence of pains, but as there was no more hemorrhage to be seen, he was content to wait. The condition of the patient in the course of an hour or so grew serious; the child was then extracted, and was followed by an immense quantity of clots and fluid blood, which had accumulated in the uterus, and the patient sank rapidly. The moral to this case is that we must keep up uterine contractions if we wish to be sure of stopping the bleeding. The best way to do this is to lay hold of the leg, and from time to time use firm but not excessive traction. This draws the breech down against the bleeding surface and prevents internal hemorrhage, while at the same time it excites uterine contractions. During the time which elapses between turning and complete extraction the medical man should not leave the patient's side: and while avoiding rapid extraction (except in very urgent cases), he must be careful not to trust implicitly in nature.

The question arises as to what must be done if the os be not sufficiently dilated for bi-manual version. I believe the cases are few and far between in which we cannot dilate the os in a very few minutes sufficiently to admit two fingers if labour has set in. I do not think we ever get really

serious flooding until labour has set in; the hemorrhage which occurs before the onset of pregnancy will usually yield to rest and general treatment. If the os is too small to admit one finger, while at the same time the bleeding is severe—and I have never seen such a case—then I believe some form of graduated dilators would be the best means of causing dilatation. As soon as the os is patulous enough to admit one finger we can generally manage to introduce the second in a very short time. Sometimes one does meet with a rigid os, though this is not common in placenta prævia, but even here I prefer digital dilatation to any other means. Barnes' bags I regard as unsatisfactory in just the cases that we would wish to employ them, and I do not think the obstetric art would have been much poorer if they had never been invented. They answer very well in dilating a soft cervix, but if we have to do with a really rigid os they make no impression at the constriction, and if we go on pumping water in, they will swell at one or other end, and may even burst in the uterus or in the vagina.

The tampon I regard with much distrust, and I believe that many maternal deaths must be laid at its door. It lulls the practitioner who uses it into a sense of security, while all the time the bleeding may be going on and finding its way into the uterus, or soaking into the tampon itself. Too often the attitude of a man who trusts to it in placenta prævia resembles that of the ostrich with its head in the sand. I do not say that a tampon carefully packed into the vagina by the aid of a speculum has never done any good in temporarily arresting hemorrhage while the os dilates a little; but often it is applied so as to be quite ineffectual, and the risks attending its use more than counterbalance any occasional advantage which it possesses.

The use of antiseptics should be observed with the most scrupulous care, as many of the cases die of septicæmia. In addition to the ordinary disinfection of the hands and instruments, it is advisable in most cases to give an intra-uterine injection of hot water, to which a little Condy's fluid or tincture of iodine has been added. Besides acting as an antiseptic, this excites the uterus to contract, and has also a generally stimulating effect upon the patient.

Subcutaneous injection of sulphuric ether is of the greatest value in many cases; transfusion must also be used in bad cases, especially Münchmayer's method, which has the great advantage of being easily performed.

My own experience in the induction of premature labour has been decidedly unfavourable—the only maternal death occurred in a case of this sort. Much, however, will depend on the circumstances of the patient. If she is situated where medical assistance can be quickly obtained, it is perhaps better to wait. As I have said before, I believe it is rare to get severe and uncontrollable flooding before the os begins to dilate. Further, if the pregnancy be artificially interrupted before term, the uterus is apt not to contract well, and the risk from post-partum hemorrhage is greater than under ordinary circumstances.—*Medical Chronicle*, June, 1892, p. 164.

89.—ON THE TREATMENT OF ABORTION.

By William Duncan, M.D., Obstetric Physician to the Middlesex Hospital.

The treatment of abortion may be considered under the following heads:—(1) The Prophylactic Treatment; (2) the Treatment of Threatened Abortion; (3) the Treatment of Inevitable Abortion; and (4) the

Treatment of Incomplete or Neglected Abortion. The prophylactic treatment is most important. Whenever a patient gives a history of having had one or more previous abortions a thorough investigation of both her and her husband must be undertaken, and if any constitutional disease be found it must be carefully treated. Syphilis is the most frequent and important disease, and whenever it is suspected both husband and wife should undergo a thorough course of antisyphilitic treatment before the risk of pregnancy is again incurred. The results are often most gratifying. Diday maintains that it is not sufficient to give mercurials before pregnancy takes place, but that they should also be administered during each successive pregnancy, even though the woman shows no signs of syphilis. Personally I believe in combining iodide of potassium with perchloride of mercury in these cases, and even if there be no syphilis the above combination exerts a beneficial action on the uterine mucous membrane.

If a patient be gouty or rheumatic, treatment appropriate for these conditions must be ordered. Anæmia requires iron in some form or other. A course of water and baths at Schwalbach or Kissingen often prove most beneficial. Any local malcondition should be remedied. If there be uterine displacement it must be set right and a suitable pessary introduced. This should be removed after the fourth month, when the uterus has risen out of the pelvic cavity. Marked endocervicitis with erosion of the os uteri should be treated by the careful application of carbolic acid or nitrate of silver. In women who abort at the same period in several successive pregnancies, and in whom no disease of ovum or uterus can be discovered, absolute rest in bed at the approaching period of danger must be enforced, whilst nerve sedatives, such as bromide of potassium and tincture of sumbul, should be administered. When abortion is threatened a vaginal examination must always be made in order to find out the state of the uterus. If any portion of the membranes has been passed it is hopeless to attempt to check the abortion, so also if any portion project through the os uteri or be in the vagina. If we can touch the ovum with the finger in the cervical canal, the case is desperate but not hopeless; if the os uteri be closed, the hemorrhage slight and the pains mild or disappearing, the case is very hopeful. The patient must be kept absolutely at rest in bed in the horizontal position; no pillow under the head but one under the pelvis helps to drive the blood away from the pelvis. The room is to be kept cool; the patient should be given liquid food, to be taken cold; no stimulants must be given; and the bowels are to be regulated by a gentle laxative, such as cascara sagrada or a drachm of glycerine injected into the rectum. The practice of applying cold to the lower abdomen and the vulva is not a good one, as it is likely to bring about what we wish to avoid—viz., uterine contraction. With regard to drugs, my rule is that if both hemorrhage and pain be present I give a mixture to be taken every three hours, each dose consisting of liquor morphiæ hydrochloratis, 20 min.; compound tincture of chloroform, 20 min.; acid infusion of roses to 1 oz. If, however, there be no pain whatever, but simply the hemorrhage, I find the liquid extract of ergot given in ten-drop doses every two or three hours to be of the greatest use in causing gentle tonic contraction of the uterus and controlling the hemorrhage. The American physicians largely use and believe in the efficacy of one-drachm or two-drachm doses of the liquid extract of viburnum prunifolium (or black haws) given every few hours. If the treatment adopted stops the threatened abortion the patient should be kept in bed for a week after all symptoms have disappeared. If, however, the hemorrhage becomes

more copious with clots, and accompanied by pains increasing in severity, together with a dilated cervix and the escape of the lipuor amnii, or if the ovum or pieces of the decidua be found in the vagina or in the clots passed, then it is almost certain we cannot prevent abortion taking place. It is, nevertheless, remarkable how in some cases the gestation may go on when one would imagine it could hardly possibly do so.

The treatment of inevitable abortion depends on how far the gestation has advanced. In the first two months it is rarely necessary to do more than keep the patient at rest and give one-drachm doses of ergot three or four times a day. If, however, the hemorrhage continues, showing there is incomplete detachment of the decidua, it is essential to dilate the cervix (in the manner to be presently mentioned) until the forefinger can be introduced into the uterine cavity and the uterine contents removed. During this manœuvre the uterus must be held steady by the other hand placed over the abdominal wall. In cases where the deciduæ are very adherent it is necessary to curette the uterus carefully and completely with every antiseptic precaution. After the second month the ovum is either thrown off entire or the sac ruptures and the ovum escapes; the treatment in either case is to empty the uterus. If the cervix be dilated one or two fingers (thoroughly cleansed and dipped in a perchloride solution) are passed through the os. In order to do this it may be necessary to introduce the whole hand into the vagina, but this is a painful procedure and as a rule, requires anæsthesia. Having got one or two fingers into the uterine cavity, they are gently insinuated along one side up to the fundus and then down the other, so as to completely surround the ovum and effect its compulsion, all the while keeping up steady pressure on the uterus externally. If the cervix be undilated (and this is one of the difficulties) it must be dilated. A very good plan is to tampon the vagina; by this means the hemorrhage is checked, and in seven cases out of ten, on removing the tampon in about twelve hours, the os uteri will be found dilated and the ovum projecting. Plugging the vagina, to be of any use, must be done properly; on an emergency a soft towel, handkerchiefs, or strips of linen will do, but sponges are bad. The best method is as follows: Tie about a dozen pieces of cotton-wool (each the size of a Tangerine orange) on a piece of string, each plug being about six inches from its neighbour; put them in a 1 in 3000 perchloride or 1 in 50 carbolic solution. Next irrigate the vagina with some of the solution, and with the patient in the left semiprone position pass a Sims' speculum. Take the plugs out of the antiseptic solution, squeeze them dry and then pack the vagina, first of all packing carefully all round the cervix in the cul-de-sac and then the vagina below the level of the cervix, using more plugs if necessary. The tampon is removed after twelve hours, and if then the cervix be undilated some recommend re-tamponing once or twice more, but to this there is the grave objection that the plugs may become offensive and the patient runs the risk of septic poisoning. The tampon is exceedingly useful if the patient is collapsed from excessive hemorrhage, as it gives her time to rally, and stimulants as well as nourishment can be administered; but if there be no collapse, or if after using the tampon once the cervix be still undilated, I am confident that no plan of treatment can compare with rapid dilation by means of Hegar's dilators. This is done as follows: the dilators, speculum, and vulsellum forceps are placed in a perchloride solution; the patient is then placed either in the semiprone or lithotomy position, and it is not absolutely necessary, unless she be very nervous, to give an anæsthetic; next Sims' speculum is passed and given to a nurse or assistant to hold, the anterior lip of the cervix is

seized with a pair of vulsellum forceps, and a douche given ; then one dilator after another is passed, with perhaps a minute's interval between each, until the cervical canal will readily admit the finger ; then the uterine contents are carefully removed either with the finger or a curette, the cavity is well douched with the perchloride solution by means of a double catheter, and a pencil consisting of twenty grains of iodoform is passed up the cervical canal, the vulsellum removed from the cervix, and a couple of cotton-wool plugs soaked in glycerine pushed up the vagina ; the speculum is removed and the patient put back to bed. As a rule she suffers practically no subsequent pain, and it is rarely necessary to give a one-third of a grain of morphia suppository ; the plugs are allowed to remain in about twelve hours, then removed and an iodine douche given night and morning for about a week after. Having carried out this routine treatment in dilating the uterus and removing its contents in (I may say) hundreds of cases, I feel justified in asserting that it is practically devoid of risk. The use of tents is, if possible, to be avoided as they may set up septic trouble and they have been known to cause death from tetanus as well as from septicæmia. If ever employed, the tents should have been previously soaked in an ethereal solution of perchloride of mercury. The use of the ovum forceps is, I think, dangerous, but careful and gentle curetting is, to my experience, quite safe.

In the treatment of incomplete abortion, when the uterus has been completely emptied all hemorrhage ceases, but if after the patient begins to get about she suffers from recurrent losses of blood, and especially if the discharge be at all offensive, it is pretty certain that some fœtal product remains behind. Sometimes the remains may be removed by disintegration or suppuration, but the patient runs great risk of septic absorption with pelvic inflammation, and a fatal result may ensue ; but even in cases where there is nothing but repeated losses the patient's general health and strength becomes seriously impaired, so that in all cases of hemorrhages continuing after an abortion has taken place, and where a week's trial of ergot in one-drachm doses every three hours with perfect rest does not effect a cure, the proper treatment is to dilate the cervix in the manner already described and to remove the retained products either with the finger or curette. It is remarkable how an extremely small bit of placenta left adhering to the uterine wall will give rise to profuse hemorrhage. I have treated several cases where the piece was not larger than the little finger-nail. It is well to remember that in the fourth month of gestation two fingers can be introduced, at the sixth month half the hand, and after the seventh month the whole hand, into the uterine cavity.—*The Lancet*, August 13, 1892, p. 360.

90.—ON THE TREATMENT OF FUNGOID AND OTHER DISEASES OF THE LINING MEMBRANE OF THE UTERUS.

By Lombe Atthill, M.D., Ex-Master Rotunda Hospital, Dublin.

[Fungoid diseases of the body of the uterus are so common that a careful study of their treatment is imperatively necessary ; especially because of the exhaustive hemorrhage they give rise to. The growth is hardly strictly an inflammatory one—it is more a villous hypertrophy of the glandular tissue.]

In the early years of my practice I was much opposed to the use of the curette, and termed it in one of my lectures "an unscientific instrument,"

and, doubtless, it is so, and I objected to its being used unless the finger were first introduced, and the part to which it should be applied by this means ascertained; but I am now prepared to retract this expression of opinion so far as to say that, in the majority of cases, it may be employed without dilating to the extent required for this purpose; but it is much more satisfactory to have explored the condition of the cavity, and I have more than once regretted that I had omitted to do so. Still the temptation to shorten the proceeding, and with it to lessen the chance of injuring the patient, often induces us to use the curette at as early a stage as possible. The curette used, should not, however, be too small—to use such a one is a great mistake; these miniature curettes are nearly useless, and the facility with which they can be employed induces some practitioners to use them freely, sometimes in the study, and even without the patient's knowledge. This certainly is wrong, and is calculated to injure the patient as well as to bring discredit on a very useful instrument.

But the use of the curette alone should not be relied on. It has to be used to a great extent by guess; at one moment we find that we remove with it perhaps a large portion of thickened and unhealthy mucous membrane, and the next time we withdraw it we find we have removed nothing but some shreds of healthy tissue, so that it is not alone possible but probable that portions of the unhealthy surface may escape the action of the instrument; I therefore always adopt further treatment. Formerly I applied the fuming nitric acid at once, and often with marked benefit, and never—since I introduced the use of the vulcanite canula to protect the cervical canal—with any disagreeable results. But I now very seldom adopt that treatment, because, if used immediately after curetting at the time when the acid is easy of application, the bleeding from the surface of the cavity is generally so free that it neutralises the action of the acid; and if used some days subsequently, you have generally to pass the probe which carries up the cotton saturated with the acid through so small a canula that only spots of the surface of the endometrium are cauterised. I therefore now almost invariably inject into it, after the lapse of about three days, a small quantity of iodised phenol, using for this purpose one of Baun's syringes. 'As I have for the last ten years adopted this method with very satisfactory results, I can speak of it with confidence.

And here again I have to recant an opinion I expressed in some of my former writings. If I formerly objected to the curette while now I advocate its use, I still more strongly objected to the injection of fluids into the cavity of the uterus. Now, as the result of careful observation and lengthened experience, I practise this very treatment which I formerly condemned. Indeed, few days elapse in which I do not inject into the endometrium some tincture of iodine or iodised phenol, or wash it out with a weak solution of carbolic acid, hazeline, boracic acid, or some other fluid with the best results. The quantity I inject at first varies from 5 minims to 30, increasing it to a drachm if it be well borne. But this practice cannot be rashly undertaken or be unskilfully carried out without risk to the patient. In careful hands, however, it is quite safe.

The cause of this change of opinion on my part is easily understood. My objection to the practice was theoretical. I now advocate the practice which formerly I condemned because I have proved it to be safe as well as efficacious; but to carry on the treatment safely two things are essential: First, that the os uteri and the whole length of the cervical canal be sufficiently patulous, so that the fluid injected can escape freely and without delay; secondly, that the quantity of fluid injected be small in quantity, especially on the first occasion. Unless the cervical canal be abnor-

mally patulous, about 5 minims only should be at first injected, the quantity to be subsequently gradually increased if it is found to be well borne, but a drachm is the maximum I ever inject of any fluid, and seldom, indeed, more than 15 or 20 minims. The larger the quantity the greater is the danger of its causing trouble, and the quantity much more than the quality of the fluid injected is to be considered. I have met with cases in which very severe pain has followed the washing out of the uterus with a weak solution of carbolic acid, and even with tepid water, when I had injected a larger quantity of the fluid than I had previously done, while no pain of any importance was experienced by the same patient when a small quantity of the strong iodised phenol had been used.

The first patient on whom I practised this treatment was a lady, who, having passed the climacteric period, was attacked with profuse hemorrhage; I dilated the uterus and removed a mass of soft shreddy membrane, of which a portion seemed to have been hanging into the cavity. I feared that it was malignant, and had it examined with the microscope, but nothing definite could be detected. This lady rapidly improved, was quite well for six months, then the hemorrhage returned more profusely than before, indeed it was on this occasion so alarming that she was almost pulseless before it could be restrained by plugging. I again dilated, and now found the uterus filled with a soft pulpy mass undoubtedly malignant. Were I to meet with such a case now I would extirpate the whole organ, as I have since done with success, but abdominal surgery was not then in the advanced state that it now is, so I contented myself with carefully removing with the curette every portion of the diseased surface, and subsequently injecting about 15 or 20 minims of iodised phenol once a week regularly. I was forced to do this, for the hemorrhage soon showed signs of recurring, but the injections kept it in abeyance. I continued this treatment for upwards of two years, and though the patient slowly lost ground and finally died, the hemorrhage never once recurred to an alarming degree, and I have no doubt but that life was prolonged for a year or more in consequence of this treatment. But it is not of its use in such cases that I am now speaking, in them hysterectomy should be performed, but its good effects in this one encouraged me to try it in others. And I soon found it applicable to a variety of cases.

The fluid I usually employ is the iodised phenol as recommended by the late Dr. Batty. It is made by dissolving one part of pure iodine in two parts of carbolic acid by the aid of a gentle heat, a small quantity of methylated spirits should then be added to keep it sufficiently thin for use; the effect of this when injected into the cavity is to cause the surface with which it comes in contact to shrivel up, and in a day or two to peel off, in fact it acts primarily as a mild caustic; some of the iodine no doubt is also absorbed, and many patients complain of the taste of the iodine in the mouth. In cases therefore in which there is reason to believe the lining membrane of the uterus to be unhealthy, and where the symptoms are not sufficiently grave to induce us to decide on dilation and curetting, the injection of the iodised phenol is indicated. I have also on several occasions employed it when patients for some cause could not or would not submit to curetting, and in a considerable number of them found it effect a cure, or at least be productive of marked benefit.

In two cases in which menstruation continued to be so profuse some months subsequent to abortion, at an early period of pregnancy, and the uterus remained so large and soft as to lead to the belief that a portion of the membranes might be retained, the injection has been followed by the expulsion of a mass which I believe to have been the remains of the ovum

shrivelled up by and then expelled in consequence of the action of the phenol. In both these cases recovery was perfect without further treatment.

In all cases in which I dilate and use the curette I inject the iodised phenol several times, at intervals of from four to six days according to the nature of the case, commencing on the third or fourth day after the operation. I have several times been consulted by patients who have been curetted without deriving permanent benefit therefrom, and believe that this has been in general due to neglecting to adopt this practice or some such after-treatment, and I have generally found, if the interval since the operation has not been very long, that the injections of the iodised phenol succeeds in effecting a cure in them.

The number and frequency of the injections must vary with the nature of each case, and therefore must be decided by the practitioner at the time, but it is necessary to bear in mind the fact that the first, and possibly the second, injection is often followed after the lapse of a few hours by some bleeding. This is especially the case if the curette has not been previously used, and it is probably due to the action of the phenol causing the superficial layer of mucous membrane to peel off rapidly, leaving a vascular surface exposed, which bleeds sometimes freely. This bleeding is of no importance, but sometimes alarms the patient, and she should be told that it may occur. If it continue after the injections have been repeated three or four times, it generally indicates that patches of large and vascular granulations exist, which, if the curette has been used, have escaped its action, and, whether it has been used or not, proves that the further use of intrauterine injections will be useless.

I am far from wishing it to be understood that I deem this treatment applicable to even the majority of cases of disease of uterine cavity, but I believe that it will frequently render the use of the curette unnecessary, and that, if not always essential, it is so in the majority, and useful in all those in which curetting has been practised, while in cases where uterine catarrh is present great benefit will often be derived from the practice.—*British Medical Journal*, July 9, 1892.

91.—ON AN OPERATION FOR THE CURE OF AGGRAVATED RETROFLEXION OF THE UTERUS.

By James Braithwaite, M.D. Lond., Obstetric Physician to the Leeds General Infirmary.

Probably of all the desiderata in gynæcology nothing is more wanted than some mode of dealing with bad cases of retroflexion. These are our *bêtes noires;* we try various pessaries with equal success, and in the end, perhaps, we attempt to shorten the round ligaments. If the ligaments are found and the womb pulled up, it is almost invariably, in my experience, found after a time as much out of place as before. It is in the very worst cases that the greatest traction upon these ligaments has been made by the displaced uterus, and at the operation they are consequently found attenuated or cannot be found at all. Yet it is in these very bad cases that the need of some operation is particularly felt. Having done a considerable number of vaginal hysterectomies for cancer, in which operation the first step is separation of the bladder from the uterus, it occurred to me that it would be easy to draw the uterus into anteversion by a ligature binding the fundus to the cervix anteriorly. This was done in a very bad case on the 11th of last May at the General Infirmary, Leeds.

The flexion was as bad as it could be, and treatment by pessaries had

entirely failed. The patient was thirty-six years of age and in fair health otherwise; multipara.

On May 18th the cervix was dilated by Hegar's dilators to size 9 or 10, and then three laminaria tents were left in for the night. On May 19th, these having been removed, the dilatation of the cervix so that it would admit the left index finger was completed by means of Reid's dilators. The left index finger being now in the uterus, it was separated from the bladder precisely as in vaginal hysterectomy, the wound being made rather wider than usual from side to side, the peritoneum, however, not being opened, but well separated as high up as possible. The uterus was now pulled well down by a volsella and the bladder at the same time raised, and the fundus, or rather its anterior wall, exposed in the wound by the index finger within its cavity. It was now seen that the peritoneum had been separated from the upper part of the uterus high up at each side only, but that it remained attached in the centre. Thus a pouch of peritoneum was pulled down into view, having a posterior wall attached to the uterus, and an anterior wall free. This pouch was avoided, and by means of a long curved-handled needle a strong silk ligature was passed deeply from side to side of the wall of the fundus, but beneath the pouch (Fig.

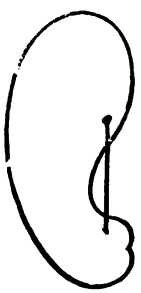

FIG. 1.

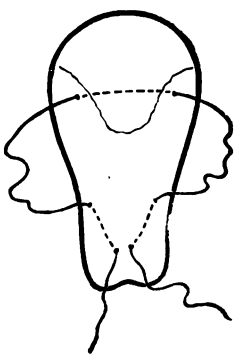

FIG. 2.

1). The two ends of this ligature were then passed deeply through the supravaginal portion of the cervix and tied together firmly in the centre, the uterus being first well anteflexed by the finger within (Fig. 2). The wound was then closed by a continuous catgut suture, the silk ligature being thus of course completely buried. The uterus was now pushed upwards into its place and a No. 6 Hodge inserted. The vagina, however, was so lax that this had no hold, and in order to keep the uterus up it was necessary to lightly plug the upper part of the vagina with antiseptic wool, the Hodge not being removed. The wool was taken out in three days and the parts examined a few hours afterwards. The uterus was in good position, and the vagina had so contracted that the Hodge was too large and a No. 4 was inserted instead. The uterus maintained its position well, and on June 7th the Hodge was experimentally removed. As, however, the removal of the Hodge made no difference, and the position and height of the uterus were perfect, it was not replaced. The patient was usually kept lying on one side, but she occasionally, after the first fortnight, got up for a few minutes. She was free from any pain or discomfort after the first week. She was sent to our Country Convalescent Hospital on June 11th, but with orders still to maintain the recumbent

osition. It seemed to me very doubtful whether in this particular case he Hodge was of any use at all, for there was no real prolapse, but uterne flexion only, and this was rectified by the ligature. Still the use of a Hodge seems a proper precaution and can do no harm, but further experince may show that it is unnecessary.

The question of course is, Will the uterus retain its position when the rtificial support given by the silk is gone? How long this will be I canot say, but probably for four or six months. By this time we may hope hat the uterine tissues will have recovered their tone, and that the ligaments and supporting tissues will have shortened and recovered from the train to which they had been subjected. Moreover, it is very likely that ome inflammatory or sanguineous discharge will by that time have become organised and firm, and will help to fix and strengthen the womb in ts normal position. The probability of this is favoured by the fact that here never was found on examination the concavity in front of the uterus vhich was certainly present when the operation was concluded. The vhole of the anterior wall of the uterus could be touched through the bladder, and it was as nearly as possible straight, not concave. This was partly owing, no doubt, to the uterus having to some extent straightened tself in spite of the ligature, but there was a cushiony feeling implying he presence of some blood.

Of course the operation is an experiment, but all operations are at first nore or less experiments. It is not attended with any appreciable risk and s easy of performance. The absolute impossibility hitherto of relieving he worst cases of this disease encourages one to hope this simple proceeding may prove a success. The ultimate result of this case shall be published with accounts of other cases which may have been subsequently operated upon. In the meantime I hope others will try it.

Should it be found that the ultimate results of this operation are not o permanent as is desirable, it would not be difficult, in addition to applying the silk ligature as described, to take out a small wedge-shaped piece from the anterior wall of the uterus at the part where the bend was he greatest. This wound would of course be carefully brought together vith catgut sutures before the major or silk ligature is tightened. The permanent shape of the uterus would thus be altered in the required direction. It must be clearly understood, however, that this is merely named is a possible addition to the operation. It is not thought likely that it will be necessary.

This patient was last examined on September 8, 1892. The uterus was in perfectly normal position without any pessary, although she was doing her house-work and attending to her five children.

A second case has since been done.—*American Journal of Obstetrics and Diseases of Women and Children*, Vol. xxvi., No. 2, 1892.

92.—ON FIBROID TUMOURS OF THE UTERUS.

By John Homans, M.D., Boston.

Uterine fibroids may be dense or œdematous, or filled with lymph-spaces, or they may, in very rare instances, be fibro-cystic, having true cysts as distinct as those in an ovarian tumour, not the dilatations in the substance of the tumours—already mentioned, which are filled with clear yellow or bloody fluid, and are simply dilated lymph-spaces, but fibroid tumours, having true cysts on their outer surfaces, with thin walls, and filled with fluid of different densities. I am of the opinion that a certain number of tumours that have been described as fibro-cystic belong to the

class I have mentioned as fibroids with dilated lymph-spaces. True fibro-cysts are very rare, and I should say that a frequent operator would not meet with more than one or two in many hundred cases of uterine tumours.

In size these tumours vary from that of a mere dot to masses weighing fifty or more pound. Their rate of growth is generally slow, by which I mean that several years' growth will be required to produce a tumour the size of one's fist. They are very common. In order to settle this question for myself, I have gone over my records of office-patients. I find that I have seen in my office during the past fifteen years 370 cases of fibroid tumours of the uterus, and, as I have seen many at the hospitals and in consultation, I think I may fairly add 150 more, making in all 520 cases. When one surgeon has seen that number in fifteen years, I think they may be called common. These tumours are said to occur more frequently in the black than in the white race, while ovarian tumours are said to be more common in the whites than in the blacks.

Operations to relieve women of fibroid tumours are rarely necessary, judging from my own experience. Of these 520 cases, I have operated only on sixty, or about 11 per cent. The conditions that should guide us in recommending the removal of the tumours are : when they threaten life by hemorrhage ; when they are unbearable by their weight, or from the inconvenience they cause, particularly in the act of stooping or bending, or from their position when they prevent a woman from sitting down ; when in a young woman they cause distress, chagrin, or shame, from the alteration they make in her figure ; when they cause so much pain as to make life a burden ; when by their presence they so obstruct the circulation as to cause swelling and œdema of the limbs, or interfere so much with the action of the digestive and eliminative organs as to cause emaciation and weakness ; when they block up the pelvis so as to cause obstruction of the bowels; or when they have caused strangulation of the bowel; or when their pedicles have become twisted—and sometimes the whole uterus becomes twisted on its axis exactly as the pedicle of an ovarian tumour does, and presents the same symptoms, and requires immediate operation.

Death by hemorrhage is very rare. I have knowledge of only three instances. Many women are blanched and anæmic and feeble, but they live, and most of them are relieved by curetting, or at times by electrolysis *à la* Apostoli, or by the removal of a pedunculated fibroid from the interior of the uterus, or by enucleating a half-extruded one.

The solid fibroid tumours rarely have any adhesions, and are removed without much difficulty after a little practice. The true fibro-cystic tumours are very rare. In the 520 cases mentioned I am only sure that eight were fibro-cystic—only about 1.3 per cent. Of these, I did not remove any successfully. In all the operations I was unable to separate the cyst from the bowel and other peritoneal structures. One woman recovered from an incomplete operation. The others all died. Of course, there may have been a carcinomatous element in some of these tumours, as very few of them are followed by autopsies. Most of these operations were attempted many years ago, when my manual dexterity was not as much developed as it is to-day ; but I still regard true fibro-cysts of the uterus as very rare, and, as a rule, very dangerous of removal.

The natural history of 90 per cent. of fibroid tumours is to grow to a size to reach the umbilicus, or to reach higher or lower than this point, and then to remain stationary, and after the menopause to become cretaceous and atrophied. Some of them, I think, shrivel up almost entirely, while others remain as large as a cocoanut without giving rise to great inconvenience. About ten per cent. of them require removal for one of

the various reasons I have mentioned in the earlier part of this paper; others atrophy of themselves, without any treatment being employed. A large number of them are discovered by the attending physician, the women being totally unaware of their presence, though they may have been in the womb for many years.

Patients with fibroid tumours present themselves between the ages of twenty and sixty years, rarely before or after these periods of life. The average age of those on whom I have found it necessary to operate is thirty-nine years. One quarter of them was about thirty-four years old. The youngest patient on whom I have done abdominal hysterectomy for a fibroid was eighteen, and the oldest sixty-five years of age. Of sixty cases, one was sixty-five, one sixty-three, ten were between fifty and fifty-two, one was eighteen; only three were between twenty and thirty, while forty-four were between thirty and fifty years of age.

The treatment of these cases may be by drugs or by surgery, or by both, or by letting alone. The most common drug used is ergot. Alone, as a rule it is ineffectual; combined with curetting, it helps to stop hemorrhage. The treatment by high doses of electricity sent through the uterus and tumour *à la* Apostoli, I have written upon at length elsewhere. Suffice it to say that it sometimes arrests hemorrhage, almost always relieves pain and gives strength, but rarely diminishes the size of the tumour.

Curetting the interior of the uterus often cures hemorrhage completely, and this curetting I follow by wiping the interior of the uterus with tincture of iodine. At the present time the surgical treatment is almost wholly by removal of the tumour, with or without the uterus. The kind of operation to be adopted has varied, and will vary with the particular case and the particular operator. In general, the two varieties of the operation are described as intra-peritoneal and extra-peritoneal treatment of the pedicle.

Of course, if the tumour has been gradually extruded more or less into the cavity of the uterus, it should be enucleated and removed under the most careful antisepsis. Such protrusion will invariably be preceded by great hemorrhage, and will give abundant warning of the necessity of interference. Quite large tumours are extruded in this way.

Tumours that have carried the fundus of the uterus to the umbilicus may occasionally, in the course of two or three years, descend into the cavity of the uterus, and be removed *per vaginam*. But tumours requiring removal, which do not thus become extruded, must be removed by abdominal section.

Very rarely, insanity follows the operation of removing a fibroid by laparotomy, as it sometimes does other surgical operations. Attacks of insanity that I have seen after surgical operation—such as ovariotomy, for instance—come on with normal temperature when recovery is taking place, and the insanity becomes more fixed and established as convalescence merges into health. One of my patients was an elderly person, sixty-eight years old, who recovered rapidly from ovariotomy; another was much younger, being only twenty-five years old. I have never seen insanity after hysterectomy.

I have seen tetanus twice in cases of other operators, but have never myself had an instance of it after hysterectomy. I have, however, had one case after an ovariotomy.

I invariably see that my patients who have recovered from abdominal hysterectomy are fitted with a firm abdominal supporter, and impress upon them the necessity of being careful about carrying heavy loads or straining themselves.—*Medical News*, June 11, 1892, p. 645.

SYNOPSIS.

AN ABSTRACT OF THE MOST PRACTICAL ARTICLES IN THIS VOLUME, WITH OTHER SHORT ARTICLES FROM THE MEDICAL JOURNALS, SHOWING THE MOST IMPORTANT INDICATIONS OF TREATMENT, PUBLISHED BY DIFFERENT WRITERS DURING THE HALF YEAR.

ARRANGED ALPHABETICALLY.

GENERAL MEDICINE AND THERAPEUTICS.

ACUTE ANÆMIA—*Saline Injections in.*—P. T. Neustube (*Vratch*, No. 20, 1892) recommends rectal injections of a physiological saline solution as a convenient, easy, harmless, and efficacious substitute for intravenous, intraperitoneal, or subcutaneous (see *Epitome*, May 21, 1892, par. 459) transfusion in cases of acute anæmia due to post-partum hemorrhage. He dissolves a teaspoonful of common salt in a bottleful of tepid water, and injects the whole into the rectum, taking the usual precautions for preventing reflux. The author employed this simple procedure in five cases (three in hospital and two in private practice), every one of the women making good recovery. One of the cases was an abortion in a patient suffering from typhoid fever with diarrhœa. Contrary to the expectations of the author's colleagues, she retained the injected fluid perfectly well.—Epitome of the *British Medical Journal*, August 13, 1892, p. 28.

AKROMEGALIA AND AKROMIKRIA.—Stembo (*St. Petersburger medicin. Wochenschr.*, 1891, xvi., Nos. 45, 46) has reported two cases that possess especial interest in view of the numerous points of contrast that they present. In the one case the extremities especially underwent hypertrophy, developing the clinical picture of akromegalia; while in the other the extremities in particular suffered atrophy, a condition resulting to which Stembo gives the name of akromikria. The first case was in a woman, who was married at sixteen, and bore two children. Menstruation ceased at thirty. A little later it was noticed that the hands and feet were enlarged; sexual desire diminished; severe headache occurred; tinnitus aurium set in; and palpitation of the heart manifested itself. At forty the skin was pale and discoloured brown; the soft coverings of the bones of the hands and feet appeared redundant; the expression of the face was sad; speech was difficult; the voice was low-pitched; the cutaneous reflexes were enfeebled; the patellar reflex was abolished on the right, enfeebled on the left; sensibility was preserved; the electric irritability of muscles and nerves was diminished. The head was enlarged, the face especially. The nose and inferior maxilla were enormous. The lower lip was thickened, the chin prominent. Tongue and uvula were enlarged. The right lobe of the thyroid gland was present, but only a trace of the left could be detected. An area of percussion-dulness was found corresponding roughly to the manubrium sterni. The thoracic walls presented lateral flattening. The upper and lower extremities were massive,

the various parts, however, retaining their mutual proportions. The hands were spade-like, the nails small. The second case presented features that would place it in the category of the sclerodactylia of the French, but from its contrast to akromegalia Stembo has proposed for it the name akromikria. It occurred in a woman, without specific history, in whom, from her thirtieth year, the following changes successively took place in one finger after another: Close to the nails pain set in, to be followed by cyanotic discolouration and then by the formation of bullæ, rupture of which gave rise to troublesome ulcers that finally cicatrised, leaving the finger shorter than it had been; ultimately the nails of all but one of the fingers were lost. In the further progress of the case, a progressive diminution in size, especially of the extremities, manifested itself. The nose and chin also participated in the process, and the face became rigid and immobile. The skin generally was thin and smooth. The tongue and larynx were smaller than usual. The voice was high-pitched. The thyroid gland seemed to be diminished in size. At no time was there any derangement of sensibility, or were fragments of bone exfoliated. The cutaneous reflexes were normal; the deep reflexes were enfeebled. The electrical irritability of nerves and muscles was increased. There was no area of percussion-dulness at the upper portion of the sternum, but there was dulness, with bronchial breathing, over the upper portion of the right lung. Microscopic examination of the remains of the finger-nails disclosed the presence of the achorion Schönleinii.

Akromikria is to be differentiated from syringomyelia, from Morvan's disease, from anæsthetic leprosy, from Reynaud's disease, and from syphilitic and diabetic dactylitis. It differs from syringomyelia in the absence of derangement of sensibility, especially of the temperature-sense; from Morvan's disease, in the absence of sensory derangement and of exfoliation of bone; from anæsthetic leprosy, in the absence of sensory derangement, of necrosis, of thickening of nerve-branches and of associated lesions; from Reynaud's disease, in the absence of hæmaturia and of marked circulatory derangement at the tips of ears and nose, as well as of hands and feet. There was no reason to suspect a syphilitic process, and the urine contained no sugar.—*The American Journal of the Medical Sciences*, June, 1892, p. 706.

ANTIPYRETIC TREATMENT IN FEVER.—Dr. Graham Steele submits the following conclusions with regard to antipyretic treatment. (1) Attention must in all cases be directed to the normal fever of the disease and to the accompanying pulse rate. Only when the fever and pulse rate assume abnormal severity is there place for consideration of antipyretic treatment. (2) Of the methods of antipyretic treatment, that by bathing is unquestionably the best, and the patient should be placed first of all in tepid water which is subsequently cooled. Wet packing is a much less efficacious method. Treatment by antipyretic drugs is the worst method of antipyretic treatment, but, notwithstanding, is often useful both employed alone and as an adjunct to treatment by bathing. In hyperpyrexia treatment by drugs is useless, and cold bathing affords the only trustworthy treatment. (3) The general laws which govern antipyretic treatment appear to be similar, whatever the *method* of treatment adopted. I am aware that theoretical considerations may be urged against this statement, but I am speaking from the practical standpoint. (4) There can be no doubt that the severity of a fever in the immense majority of cases may be well estimated by the resistance which the pyrexia offers to antipyretic treatment. As a general rule continuous fever offers greatest

resistance, remittent less, and intermittent least. The greater efficacy of antipyretic treatment in the later stages of typhoid may be partly so explained. The fact of degrees of resistance to antipyretic treatment corresponding to degrees of severity of the attack suggests that the course of mild and moderate cases might be greatly shortened by a vigorous adoption of antipyretic treatment. (5) The difficulties in the carrying out of antipyretic treatment by bathing are so great that the treatment must be reserved in private practice for cases in which danger threatens from high fever and severity of the general symptoms. Antipyretic drugs may often be used with advantage as adjuncts to treatment by bathing and occasionally alone. Nevertheless their use is to be avoided as much as possible. —*Medical Chronicle*, April, 1892, p. 15.

[See also Article by Dr. Graham Steele "On the Treatment of Fever by the External Use of Cold Water," at pp. 1–3 of this volume of the *Retrospect*.]

BROMIDE OF ETHYL NARCOSIS.—At a meeting of the Gesellschaft der Aertze, in Vienna, on the 11th December, 1891, this subject was under discussion (Dr. Gleich, *Zeitschrift für Therapie*, 1892, No. 1, S. 1). Since September this narcosis has been employed one hundred and fifty times in Billroth's clinic, amount used one to nine drachms, the last-named amount having produced cyanosis and slight collapse in a strong patient of thirty years. Narcosis is produced in thirty seconds; awakened from suddenly; alcoholics show a brief period of excitement; vomiting in only five cases, probably from swallowing of the vapour from too hasty inspiration. Dittel reported about thirty cases without disagreeable symptoms. Von Metnitz believed that it resembled nitrous oxide gas, in that excitement, except in alcoholics, was rare; unpleasant after-results (nausea, vomiting) are infrequent. Unlike the gas, it does not give rise to cyanosis and it does not require elaborate apparatus. Von Hacker had used it in about fifty instances; reported himself satisfied. He had used on one occasion fifteen drachms. The longest operation was eleven minutes. However, he called attention to the use of pental by Breuer, and believed that it presented advantages over the bromide of ethyl, in that the after-effects were even less marked; complete insensibility to pain could be obtained, and yet the patients respond when called upon. The longest operation with pental was thirty-one minutes.

From Prof. Billroth's clinic comes a warning which is reported by Dr. Alfred Gleich, in the *Wiener klinische Wochenschrif*, 1892, No. 11, S. 167. Having successfully employed this anæsthetic in nearly four hundred instances, he records a fatal issue after the use of five drachms. The operation was multiple incision in a carbuncle in right deltoid region, and death resulted in three minutes from the commencement of the narcosis, the heart and respiration ceasing. The necropsy showed parenchymatous and fatty degeneration of the wall of both ventricles of the heart, as did the liver, and parenchymatous degeneration of the renal epithelium. —*The American Journal of the Medical Sciences*, June, 1892, p. 694.

CHILBLAINS.—Dr. Brogg recommends for ulcerated chilblains: ℞. Acid. carbol., ♏ xv.; Ung. plumbi., 3 v.; Lanolini, 3 v.; Ol. amyg. dulc., 3 ss.; Ol. lavand., gtt. xx. M. S.: Apply two or three times daily. —*New York Med. Record*, April 30, 1892, p. 491.

CHLOROSIS—*Sulphur in.*—Professor Schulz again draws attention to the value of sulphur in certain cases of anæmia. After alluding to the prominent part played by sulphur in the life of the cell—a part analogous

to that of hæmoglobin in the blood—and to the excellent results obtained by the use of sulphur waters in malarial cachexia, he comes to these conclusions:—(1) In cases of pure chlorosis in which iron proves inefficient, the general condition is decidedly improved by sulphur; (2) after the administration of sulphur has gone on for some time, treatment with iron can be commenced and continued with success; (3) in cases of chlorosis complicated with catarrhal and inflammatory conditions of the digestive tract, sulphur is not borne. Schulz relates a case illustrating the advantage of the sulphur treatment. The patient, a woman of thirty-four years of age, showed an extreme degree of anæmia, and had loud cardiac brûits. She complained of headache, giddiness, shortness of breath, palpitation, and complete loss of appetite, with pain in the epigastrium after food. Rest in bed with bland fluid diet was ordered, and this—with bismuth and morphine and occasional doses of Carlsbad salt—relieved the gastric pain. Iron was tried in the form of the saccharated carbonate, but vomiting immediately set in, and it had to be discontinued. Other preparations of iron were tried with no better result. Sulphur was accordingly given, and this she bore very well. Great improvement ensued: the anæmic appearance lessened, and the headaches and palpitation disappeared. She was discharged from hospital greatly bettered; but she still complained of some palpitation on considerable exertion. Iron was again given as the saccharated carbonate, and this time was tolerated without difficulty. The sulphur was used in the form of flowers of sulphur mixed with sugar of milk, as much being taken three times a day as would lie on the point of a knife.—*Berliner-klin. Wochenschr.*, No. 13, 1892.—*The Practitioner*, June, 1892, p. 448.

COCAINISM.—In the *Journal of Mental Science*, 1892, No. 125, p. 195, Dr. Conolly Norman sounds a timely warning. He believes that cocaine is more seductive than morphine; it fastens upon its victim more rapidly, and its hold is at least as tight. The especial dangers are: it is particularly treacherous; it produces early mental break-down, both in the moral and intellectual spheres; it is intensely toxic, bringing about destructive tissue change after a comparatively short period of abuse; it is probably the most agreeable of all narcotics, and therefore the most dangerous and alluring. In the future, as Erlenmeyer says, it may become the third great scourge of the human race (alcohol and opium being the first and second). —*The American Journal of the Medical Sciences*, June, 1892, p. 691.

CREASOTE AND ITS ELEMENTS.—Dr. E. Main has made a laboratory study of this remedy, which has of late attracted so much attention. He established the fact that the elements of creasote were poisonous in the following order: 1, para-cresylol (least); 2, phlorol; 3, guaiacol; 4, creasote; 5, creasol (most). Locally, creasote was the most irritant, guaiacol the least. For all these elements the laboratory work shows three important characteristics: 1, that they are feebly poisonous; 2, a tolerance can be established; 3, they are eliminated by the lungs. As remedies against tuberculosis they can be arranged in the following order: 1 and 2, phlorol and creasol; 3, para-cresylol; 4, guaiacol; 5, creasote (most powerful). It is believed that although all the elements of creasote have some value, and indeed guaiacol should be especially mentioned, yet creasote is the most active. Beechwood creasote should be preferred for its antiseptic power, for its feeble toxicity, and because of the results furnished by experimental therapeutics as well as by clinical observations.—*Bulletin Générale de Therapeutique*, 1892, liv. 10e., p. 205.—*The American Journal of the Medical Sciences*, July, 1892, p. 83.

EHRLICH'S TEST OF THE URINE IN TYPHOID FEVER.—With the intention of ascertaining, if possible, the precise value of the test, 600 urinalyses, covering a period of ten weeks, and embracing 275 medical and surgical cases, were made. The method chiefly employed was the following: Two solutions are kept in separate bottles. One contains 5 c.c. of hydrochloric acid, with sufficient water to make 1000 c.c., and is saturated with sulphanilic acid. The second bottle contains a ½ per cent. solution of sodium nitrite. Forty c.c. of sulphanilic acid solution are added to 1 c.c. of the sodium nitrite, and the two thoroughly mixed. Of this mixture 1 c.c. is added to 1 c.c. of urine, and the two shaken forming a yellow solution. Drop by drop 1 c.c. of ammonium hydrate is allowed to trickle down the side of the tube to form a supernatant white layer, between which and the yellow the least shade of garnet is rendered striking by contrast. In a number of cases 1 c.c. of urine was shaken with 6 c.c of absolute alcohol, filtered, and the filtrate treated as indicated. Only a hue between eosin and garnet was recognised, and yellow and brown rings were disregarded. Distilled water was used in the solutions, and accurate measures maintained in their preparation and use. As the reaction is very delicate, the test tubes were washed in fresh water twice after each test to eliminate contamination. The solutions were kept separate, and fresh reagents used with each analysis, since the sulphanilic and nitrous acids, when combined, decompose rapidly. The indications from the analyses are formulated as follows:—(1) The reaction is independent of any single disease or any group of diseases. (2) It is frequently found in urine containing albumen, peptone, biliary substances, sugar, aromatics, and possibly leucomaïnes or ptomaïnes. (3) We have failed to obtain more constant results with the absolute alcohol than without its use. (4) Ehrlich's test is not always present in typhoid, even at the acme of the disease; it was absent in 1½ per cent. of our cases. The reaction, therefore, is at best only a presumptive, and not a positive, evidence of typhoid. Its value is on a par with that of gurgling and tenderness in the right inguinal region and inferior to the temperature, roseolæ, and splenic tumour. (5) Together with more reliable signs and symptoms, as temperature, enlarged spleen, etc., it may contribute to a diagnosis of typhoid, and conversely, when absent, in 98½ cases out of 100, the disease is other than typhoid. (6) It is found in many other diseases, some of which, in certain clinical features, may simulate typhoid—*e.g.*, septicæmia, uræmia, tuberculosis in its varied aspects, intestinal, peritoneal, miliary, etc., as well as enteritis, malaria, and pneumonia. In differential diagnosis, therefore, when other distinctive symptoms are lacking, the sulphanilic acid test is untrustworthy. It fails when most keenly wanted, and may be absent in otherwise typical typhoid fever. (7) If much reliance is placed in the test, a typhoid relapse may be confounded with complications. We have observed, as complications and early sequelæ yielding the reaction, acute nephritis, lobar pneumonia, pulmonary tuberculosis, pleurisy, etc., and would have been at a loss as to the cause if confidence had been reposed in the test. (8) Inasmuch as it occurs typically in many diseases in which the causes and elaborated products differ, and since the various compounds with which the diazo-benzine-sulphonic acid unites are as yet unknown, the reaction cannot commend itself to the scientific chemist, however it may be regarded clinically.—Dr. A. E. Edwards, Cork County Hospital, Chicago, *Medical News*, April 2, 1892, p. 365.

GOUT—*Management of.*—In a clinical lecture at the Vienna General Hospital, Nothnagel (*Internationale klin. Rundschau*, 1892, No. 10) stated *that* the diet of the gouty patient may contain green vegetables and fresh

fruits. Sugars and starches are to be avoided. A little meat may be allowed; white meats are preferable to red meats. Active physical exercise is to be encouraged; the action of the skin is to be stimulated by baths and friction. In the treatment of the diathesis alkalies and alkaline waters occupy a prominent place. The lithium salts, well diluted, are useful, permitting, as they do, the formation of soluble combinations of uric acid. Recently, with the same end in view, piperazin has been strongly recommended. In the attack, applications of cold or heat, bloodletting, fomentations of narcotic substances, ointments of opium, have in the past been employed; but these are now usually abstained from, as experience has taught that by energetic treatment the condition may be transformed into atonic gout; at most, inunctions with an ointment of cocaine are made. During the attack, the administration of an acid, like phosphoric acid, has been recommended; and in the intervals between attacks, sodium salicylate. Other remedies failing, colchicum may be resorted to in vigorous doses, conjoined with a narcotic, if warranted by the intensity of the pain.—*Centralbl. für die Gesammte Therapie*, 1892, x. 5, p. 271.—*Medical News*, July 16, 1892, p. 72.

[See also Articles 5, 6 and 7, by Sir Wm. Roberts, at pp. 8–15 in this volume of the *Retrospect.*]

GRAVES DISEASE—*Treatment of.*—The treatment of exophthalmic goitre is discussed at length in the *Revue de Thérapeutique Gén. et Thermale.* The treatment is directed according as the disease is in the phase in which the paroxysm is accompanied by marked dyspnœa and tachycardia, or during the general course of the malady. For the purpose of combating the cardiac excitation, which is the principal factor of the paroxysm, full doses of digitalis leaves (as originally proposed by Trousseau), from half to one grain, should be given every half hour, for two or three hours, as long as the intensity of the paroxysm lasts. Ice should be applied over the præcordial region. Recourse may be had to bleeding if, after three hours, great amelioration of the symptoms has not been evident. The iodides and iodine have probably been the drugs most frequently recommended in the treatment of the ordinary course of the disease. Dr. Cheadle is an ardent supporter of tincture of iodine internally. It may be necessary to use bromides to quiet the excitation of the nervous system and the cardio-vascular system, or to employ extract of valerian to control the nervous system, the dyspnœa and the palpitation. Digitalis is particularly useful for the violent tachycardia. In some cases belladonna is beneficial, and the neutral sulphate of atropine has been highly recommended by M. Grasset. For quieting the pulse M. Germain Sée highly recommends ten, twenty, or thirty drop doses daily of tincture of veratrum viride. The question as to the usefulness of electricity in Grave's disease is unsettled.—*The Therapeutic Gazette*, p. 408, vol. xvi., No. 6, 1892.—*The Practitioner*, October, 1892, p. 297.

INSOMNIA—*Chloralamide in.*—(1) Chloralamide is a safe and one of the most reliable hypnotics. (2) It is not ordinarily followed by distressing after-symptoms, particularly headache. (3) It is especially valuable as a hypnotic where pain is a prominent factor, but not violent. (4) In cases of insomnia, where there is excessive activity of the brain, it is also useful. (5) On account of its stimulating activity on the respiratory function, it is the hypnotic *par excellence* in nervous exhaustion, associated with an asthenic condition of respiration and symptom complex indirectly dependent on this, brought about by defective oxidation and the formation of unstaple chemical compounds in the system. (6) On account of its very

slight action in depressing the circulation, it can be given in diseases associated with a weak heart, with greater safety than most of the other hypnotics, not excepting chloral itself. (7) It is conveniently administered in the shape of an elixir, and this overcomes the need of dissolving it. (8) Its dose is from one to three scruples, administered one hour before sleep is desired, and this should not be repeated within two hours, for occasionally the action of the drug is delayed.—Dr. Joseph Collins, New York, *Journal of Nervous and Mental Diseases*, July, 1892, p. 539.

IODOFORM—*Its Bactericidal Properties.*—Iodoform is not an antiseptic in the sense that it kills bacteria, but it seems, under certain circumstances, to have the power of breaking up their products. Krause has recently asserted that iodoform is really a bactericide when free oxygen is absent, and he points out that it acts better as an antituberculous agent in closed cavities, as in abscesses, than on free surfaces. He also states that much better results are obtained by packing tuberculous wounds with gauze saturated with iodoform than by sprinkling it on a free surface. Certainly I have had several cases lately which seem to confirm this view, where sinuses have done extremely well by slitting them up and stuffing them with iodoformed gauze—much better than by the former plan of scraping and draining them, or injecting iodoform and glycerine.—Mr. Watson Cheyne, *British Medical Journal*, June 25, 1892, p. 1355.

LEUCOCYTHEMIA AND HODGKIN'S DISEASE—*Diagnostic value of the Eosinophile Leucocyte in.*—The following considerations will show that the eosinophile cell is of no specific importance in leukæmia. (1) Neusser, Leyden, and Janowski found large numbers of these cells in gonorrhœal pus, and my own observations on four acute cases confirm these observations. (2) Pus from subcutaneous abscesses of rabbits, dogs, and guinea-pigs often consists almost entirely of eosinophile cells. (3) Pus obtained from cases of purulent ophthalmia, which attacked some of the rabbits kept in a peculiar cage, also presented a considerable number of such cells. (4) Most specimens of human pus were likewise full of them. Such pus was obtained from two perineal abscesses, a psoas abscess, from a case of suppurative periostitis, of necrosis of the jaw, and from several sloughing and granulating wounds. (5) The sputum of patients suffering from asthma, phthisis, and bronchitis, often contains great numbers of eosinophile cells. I have examined six cases of advanced tuberculosis pulmonum, and in five the quantity of these cells was almost enormous. (6) In almost all specimens of early non-purulent inflammation in man, rabbits, guinea-pigs, dogs, or frogs, a large number of eosinophile cells is found in the tissues and vessels. These observations extend already over a long series of cases. (7) In muco-purulent nasal secretions numerous eosinophile cells are often noticed, and even human saliva at times contains some, though not in any large number. (8) Professor Dreschfeld mentions that they have also been found in nasal and pharyngeal polypi, and Neusser and Canon have seen them in the corium of the skin in certain cutaneous affections. The part played by the eosinophile cells in health and disease is not yet known, and observations on the morphology of the leucocytes in febrile diseases, and other pathological as well as physiological conditions are greatly wanted. This, however, is certain, that we cannot rely on the eosinophile cell in the diagnosis of leukæmia, whether splenic or myelogenous. Animal experiments show that this cell is quite independent of the spleen or lymphatic glands, and that its myelogenous origin is extremely doubtful. In the frog they are certainly not myelogenous, since they can be made to increase in the amputated leg

after removal of the bones. We see then that (1) leucocytosis with an increase of the eosinophile cells does not occur in all cases of leukæmia; (2) leucocytosis with an increase of the eosinophile cells is found in other affections beside leukæmia; (3) these cells are by no means specific for leukæmia; (4) judging from animal experiments, they are quite independent of the spleen and lymphatic glands, and probably also of the bone-marrow. The only logical deduction from these considerations is, that the eosinophile cells are of no diagnostic value in leukæmia or Hodgkin's disease.—Dr. Kantback, *British Medical Journal*, July 16, 1892, p. 120.

LYMPHOSARCOMA—*Arsenic in.*—After referring to the good effects produced by this drug in malignant lymphoma and the glandular enlargement of pseudo-leukæmia, E. Romberg (*Deut. med. Woch.*, May 12, 1892) reports the following exceptional case. A man, aged 29, suffering from primary lymphosarcoma of the mediastinum, had secondary deposits, especially in the lymphatic glands and in the skin. In the course of the treatment by arsenic, the tumours of the skin actually disappeared in from two to four weeks' time. There was no such change in the other growths. The nature of the case was subsequently proved by the necropsy conducted by Birch-Hirschfeld. The author can see no other cause for the disappearance of these growths than the arsenic, and he refers to two other published cases in which sarcomatosis of the skin was apparently cured by the same drug. The author says that the case reported here demonstrates how ill-defined is the division between malignant lymphoma and lymphosarcoma, and how indefinite is the term pseudo-leukæmia. The enlargement of the spleen, the hyperplasia of the tonsils, and the good effect of arsenic, show the above case of lymphosarcoma to be closely allied to malignant lymphoma.—Epitome of the *British Medical Journal*, June 18, 1892, p. 99.

LYSOL.—Lysol is a saponified phenol derived from cresols by the action of nascent soap. It occurs as a dark-brown, syrupy liquid with a faint aromatic odour; it is freely miscible with water and alcohol, forming a clear solution which lathers when agitated; its specific gravity is 1.042. It is possessed of powerful deodorising properties, and has been introduced as a soluble antipyretic and disinfectant. All agree that it is superior to the disinfectants commonly in use, possessing, as it does, higher antimycotic powers than carbolic acid or creoline, while it is less variable in constitution than the latter, and less poisonous than either. It produces marked improvement in lupus when applied freely, by means of a cotton probe, after removal of the crusts, and allowed to dry, the application being repeated daily, or every second day. The pain of the application is acute for one half-hour, but entirely disappears in two or three hours. Dr. Unna has used lysol in the form of a plaster mull, and appears to have been favourably impressed with it; in this form it is nearly painless. Intra-uterine and vaginal injections have been repeatedly made without any toxic effects. Michelsen has used a one third per cent. solution in twelve cases of celiotomy with the happiest results, healing by first intention following. It has also been used in the same strength in abortion. Szuman advises a one half per cent. solution for irrigation of the pleural and peritoneal cavities. In the bladder it gives rise to vesicle pain and tenesmus. Höffler recommends a two per cent. solution in diphtheria, and Gerlich employs it in the following prescription as a gargle for foul breath or diseased conditions of the mouth and throat: Lysol, 2.5 grams; water, 50 grams; alcohol and glycerin, each 25 grams. It acts as an efficient general disinfectant for the walls of a room by spraying

with from a one to three per cent. solution, while for the hands, sutures, instruments, irrigation, and field of operation from one to two per cent. solution suffices.—Dr. Dorland, *Philadelphia Medical News*, April 16, 1892, p. 427.

Osteo-Arthropathy of Pulmonary Origin.—Moebius (*Münch. med. Woch.*, June 9, 1892) observes that this disease differs from acromegaly in that the fingers, and not the hands as a whole, are affected. The fingers become drumstick shaped, and the ends of the bones of the forearms thickened. The feet are similarly affected. The lower jaw and the tongue are not involved. The distinctions between these two affections are so well marked that they must be different diseases. The osteo-arthropathy is always secondary to pulmonary disease. Marie has pointed out that the clubbing of the finger ends so often seen in lung diseases is of like nature with this osteo-arthropathy; and Bamberger has shown that painful thickening of the ends of the bones of the forearm not so very rarely occurs along with this clubbing, thus forming intermediate conditions. Decomposition of pus would seem to be the necessary antecedent for the development of this osteo-arthropathy, the morbid change being brought about by the absorption of some poison from the focus of disease in the chest. Many patients have first complained of the pain and swelling when the sputum became offensive. Moebius then refers to hereditary predisposition, and records the following case in which nervous influences were apparently at work. In a man aged fifty-one, suffering from bronchitis, the sputum became foul-smelling. A few weeks later there were pains in the distribution of the right ulnar nerve, and especially in the ends of the corresponding fingers. A month afterwards the pains ceased, but the hand became weaker and more useless. On admission, in addition to the paresis of the right ulnar nerve, there was great thickening of the end phalanges of the two corresponding fingers, the nails being of the shape of a parrot's beak. There was only very slight swelling, either in the remaining fingers of that hand or in the fingers of the other hand. The feet were unaffected. There was great loss of memory. There seems to have been some injury to these two fingers, and this may have had some relation to the neuritis. The author believes that it was not a mere trophic disturbance, but that the poison absorbed from the diseased lung was more active in the region of the affected nerve than elsewhere.—Epitome of the *British Medical Journal*, July 9, 1892, p. 5.

Osteo-Arthropathie Pneumique of Marie.—It has been so short a time since Marie called attention to the group of symptoms to which he gave the name osteo-arthropathie pneumique, that as yet little light has been shed upon the obscure etiology and pathology of the disease, if indeed it can be considered other than a variety of acromegalia, as Arnold believes it to be. Lefebvre, in his exhaustive thesis on this subject which appeared last year, collected twenty-five cases reported to date. From the fact that almost, if not quite, all these cases occurred among adults, he draws the conclusion that adult life seems to be a necessary condition to the development of the disorder; and states, in addition, that his researches in the children's hospitals, despite the frequency of purulent pleurisy in childhood, were without result. Later observations, however, tend to show that children are not exempt from this peculiar affection. Moussous has reported (*Journal de Médecine de Bordeaux*, October, 1890, Nos. 10 and 11) a case occurring in a girl of fourteen years, following a purulent pleurisy; and Bailly, in 1862, recorded changes in the fingers and toes of a child ten years old, as a sequel of pleurisy. The most recent contribu-

tion to the subject is found in an interesting paper by Gillet (*Annales de la Policlinique de Paris*, 1892, No. 3, p. 93), who reports two cases occurring in children. In the first patient, a boy of twelve and three-quarter years, marked changes had existed since the age of six years, attending a condition of emphysema and bronchial dilatation, beginning at the age of four years. There were well-marked lesions of the fingers, toes, and malleoli, with decided dwarfing of bodily growth, slight flattening of the superior frontal regions, slenderness of the shafts of the long bones, and bad teeth. Growth seemed to have stopped at six years of age, and, while the boy was as intelligent as his schoolmates, he had the height and frame of a boy of six years. The second observation concerned a girl of seven years, suffering from pulmonary tuberculosis and empyema, who showed increased size of the distal phalanges of the fingers and great toes, with the characteristic curving of the nails. After the cure of the empyema the deformations almost entirely disappeared, though the tubercular disease of the lung continued its course. It is noteworthy that this regression occurred also in the very similar case reported by Moussous; both of them occurring with an empyema. It is, therefore, evident that osteo-arthropathic hypertrophiante pneumique may occur in childhood; that the lesions do not seem to invade as many bones as in adult cases; that these deformations may be recovered from; and that the same cause may produce coincidently an arrest of development and also trophic disturbances, either directly, or indirectly, by an injurious action upon the entire organism. —*American Journal of the Medical Sciences*, July, 1892, p. 121.

PERNICIOUS ANÆMIA—*Transfusion of Blood in.*—At the Edinburgh Medico-Chirugical Society, on June 22, 1892, Dr. Brakenridge read a paper on the treatment of pernicious anæmia by the transfusion of the human blood. He has met with nine cases of this disease during the last few years. In every case the ordinary treatment by iron, arsenic, etc., was first fully tried. In four of the cases this treatment was successful, but in five it was deemed necessary to resort to the transfusion of the human blood. The cases were about equally distributed as regards sex. The ages varied from twenty-five to sixty-three. The red corpuscles in some or the cases had fallen to something like 500,000 per cubic millimetre, and the hæmoglobin to 20 or even 16 per cent. There were the usual concomitant symptoms of anæmia: pallor, lemon-yellow skin, dyspnœa, hæmic bruits, etc. When it was found that the patients failed to respond to the empirical treatment of anæmia, and the patient was progressively getting worse, transfusion was performed in every case by Dr. John Duncan. The number of transfusions varied from one to four, and the quantity of blood transfused from two to six ounces. In one of the cases acute miliary tuberculosis set in shortly after the first transfusion, and death followed in something like three weeks. In another case a rigour came on a few hours after the one transfusion; shortly after pain in the arm, swelling, and phlebitis followed. This was found to be due to impure distilled water, which was used as a solvent for the phosphate of soda used to keep the blood liquid. This patient had now recovered from the phlebitis, and his red corpuscles, which had fallen to some 600,000 now numbered 2,000,000; he would, if necessary, be again transfused. Of the three others, marked improvement at once set in after the first and each subsequent transfusion. In some of the cases the red cells had risen to the normal number, and the patients were now practically well. Dr. Brakenridge urged that transfusion must now be considered not only a legitimate, but an obligatory line of treatment. Dr. Affleck showed a case of a man over sixty, whose red cells had fallen to 500,000, and hæmoglobin to under 20 per cent. His

condition was urgent: great dyspnœa, pallor, teeth loose in sockets, etc. Transfusion was at once done, and in a comparatively few weeks the number of red corpuscles had risen to about the normal, and the man seemed perfectly well and fit for his ordinary work. Dr. John Duncan followed with some remarks on the operation of transfusion. Phosphate of soda in distilled water was used to prevent coagulation. The strength varied from 3¼ to 10 per cent. The latter was too strong. Hereafter it would be well to use a solution of phosphate of soda of a specific gravity about equal to that of the blood of the patient on whom transfusion was to be performed. The important points in the operation were watchfulness of symptoms, pulse, respiration, temperature. Further, the operation had to be done extremely slowly, inasmuch as giddiness, faintness, pain in the back, pains in the limbs, sometimes followed and disappeared if the operation were discontinued or done more slowly. The quantity transfused varied from two to ten ounces. Great tact and patience were required. The distilled water used as a solvent for the phosphate of soda should be boiled several times, and ought to be perfectly clear. The operation seemed to be perfectly safe. Dr. Duncan thought it was well not merely to inject the blood serum, but also the corpuscles. *British Medical Journal*, July 2, 1892, p. 20.

PIPERAZIN.—Piperazin occurs in well-defined acicular colourless crystals, readily soluble in water and strongly alkaline in solution, with no toxic properties. It is particularly designed to take the place of the lithium salts, and has proven itself of great service in the management of the uric-acid diathesis, with the formation of concretions in the kidneys. In this condition, tablespoonful doses of the one-half per cent. solution are employed; the drug hastens the elimination of the renal calculi and arrests the severe colic-like paroxysms. Undoubtedly piperazin possesses unusually great uric-acid solvent power, and its general applicability in gout, rheumatism, urinary calculus, and all diseases consequent upon the uric-acid diathesis is evident. Its great advantage over lithium is that it will form seven times more of a combined salt with the uric acid than will lithium, and the resultant piperazin urate is twelve times more soluble than the lithium urate. The following mixture has been recommended for solvent purposes: Piperazin puri, grains 15; syr. cort. aurant., drams 6; aqua destil., q. s. ad ounces 6; to be taken during the day. In lumbago, subcutaneous injections of a two per cent. solution were employed, with entire relief from the pain in nine or ten days; the injections themselves were quite painful, but no abscesses or unpleasant after-effects were noted. Piperazin has been used in mental troubles and in lead paralysis as a tonic and diuretic, and has been recommended in pruritus and nocturnal enuresis. Dose—from 5 to 8 grains several times daily, with a maximum of from 15 to 30 grains; subcutaneously, 5 grains. The best mode of administration is as follows: Dissolve 15 grains of pure piperazin in about one quart of carbonated water, and direct the patient to drink this amount in convenient doses in the day. By adding 15 grains of phenocoll hydrochlorate an additional analgesic action is secured. Piperazin water, thus prepared, may be bought in one quart mineral-water bottles.—Dr. Dorland, *Medical News*, April 23, 1892, p. 462.

RAYNAUD'S DISEASE—*Nitro-glycerine in.*—Cates (*University Medical Magazine*, vol. iv., No. 5, 1892) reports a case of Raynaud's disease—that is, symmetrical gangrene of the extremities—in which great relief was obtained by the injections of nitro-glycerine, commencing with one-hundredth of a grain, and gradually increasing the dose up to one-fiftieth of

a grain, three times a day. The patient grew better, sores healed, and the pain disappeared like magic, so that the routine duties of life were again made possible.—*Therapeutic Gazette*, March, 1892.—*Edinburgh Journal*, June, 1892, p. 1142.

RÖTHELN AND SCARLET FEVER—*Differential Diagnosis of.*—In contrast with measles and scarlatina Rötheln presents as a rule slight and transient fever or other constitutional disturbances; often so trifling as to attract little attention, often absent altogether. The eruption appears early; it is in many cases the earliest manifestation. It is irregular in character and distribution. It commonly appears first about the head and face, and sometimes resembles that of measles; but the macules are of a brighter pink and do not tend to the crescentic arrangement; less often it resembles that of scarlet fever; but it is paler. It appears and disappears irregularly over the surface, so that a fresh patch may show itself just as a patch elsewhere is fading. Catarrhal manifestations are slight and as a rule restricted to the upper air-passages. The lymphatic glands of the neck are more or less swollen, the posterior rather than the anterior chains being infiltrated; and this is an early symptom. At the end of four days, sometimes as late as the fifth or sixth day, the rash vanishes without desquamation, save where it has been unusually intense. Throat-symptoms, if present at all, are trifling and unlike those of scarlatina; catarrhal bronchitis does not occur; the initial fever, when present, subsides slowly rather than abruptly, and is insignificant; the temperature does not often reach 101° F.; moreover, the pyrexia is transient, differing in all these respects from that of measles and that of scarlatina. Chill, convulsions, and vomiting do not mark the invasion. If the eruption suggests measles of a mild type, the constitutional symptom declare for Rötheln; if the rash resembles that of an atypical scarlet fever, the absence of the characteristic general disturbances of the latter points the way to a diagnosis. Cases of Rötheln occur, as in the other eruptive diseases, in which for a time the diagnosis is impossible, but in proportion as we attach importance to the broad distinctive traits of the disease and ignore minor symptoms, the number of these cases rapidly diminishes.—*Medical News*, July 30, 1892, p. 137.

SCARLET FEVER—*Treatment of the Throat in.*—With regard to scarlet fever, the throat affection from the first demands our special attention, for a great deal of suffering is so often occasioned by its assuming what I call a "degenerated" type. There is no doubt that sloughing occurs in some of the worst cases. I have seen, for instance, the soft palate perforated and the carotid opened into. It is possible that timely aid may prevent such accidents, as well as the common ones of brawny infiltration of the cellular tissue of the neck with or without sloughing and suppuration. The act of gargling gives pain, and, I think, the movements of the throat which it necessitates must be injurious to the inflamed parts. The application of antiseptic remedies by means of a large soft camel-hair brush is, I think, preferable to gargling, and, in children, of course, the latter is out of the question. The least irritating antiseptics are the best. I am very fond of Barff's boroglyceride. The action desired is, of course, not a specific one. Scrupulous cleanliness without any antiseptic would go for much in the treatment of the sore throat of scarlatina. Steam inhalations and the external application of poultices certainly seem to be comforting to patients. —Dr. Graham Steell, *Medical Chronicle*, April, 1892, p. 18.

SULPHONAL—*Poisonous Action of.*—Dr. Camillo Fürst has a timely paper on this subject in the *International klinische Rundschau*, 1891, No.

48, S. 1876 ; No. 49, S. 1919. He notes such symptoms as twitching of the muscles, nausea, vomiting, vertigo, fainting attacks, tinnitus, chilly sensations, paralytic weakness, ataxia, diminished pupillary action, diarrhœa, (rarely), obstipation, ischuria or complete anuria, lowered temperature, cardiac weakness, impairment of respiration, cutaneous eruptions, hallucinations, and amaurosis. In spite of all these symptoms, with greater or less reason attributed to sulphonal, in single doses it is devoid of danger, and in daily use for long periods of time it is harmless, but the moment that symptoms or kidney derangement arise of there is diminished peristalsis, repeated doses or even its daily usage is absolutely contra-indicated. —*The American Journal of the Medical Sciences*, April, 1892, p. 445.

SULPHONAL AS A SEDATIVE AND HYPNOTIC.—Dr. T. Carlyle Johnstone, in the *Journal of Mental Science*, 1892, No. 124, p. 55, gives an analysis of fifty cases of mental disorder in which this drug was used. He arranges his results in three divisions : (1) The effects produced by single doses, or doses separated by long intervals ; (2) those produced by doses repeated at intervals of forty-eight hours ; (3) those produced by doses repeated at intervals of twenty-four hours or more frequently. His practice, as the result of the experiments described in this paper, is to begin with single doses administered in the evening, and, when necessary, to repeat them at intervals of forty-eight hours. If this is found insufficient to produce sleep and quiet, the interval is next reduced to twenty-four hours. In this way a satisfactory hypnotic effect has always been obtained ; but when the excitement is intractable, and the drug is employed primarily for its sedative action, it is not infrequently found necessary to further reduce the intervals by giving it twice a day—namely, in the morning and evening ; greater frequency has not been found to have any distinct advantage. He concludes that, *in properly regulated doses*, it is an efficient hypnotic, and, compared with other hypnotics, its action is fairly certain and constant. The sleep produced by it is natural and tranquil and undisturbed by dreams. It has no injurious effect upon the circulation, respiration, appetite, digestion, or temperature, or on the general health. After a time it may be discontinued or the dose reduced, the patient continuing to sleep well. It has a distinct sedative action in mental excitement or distress, and may be employed with great benefit in cases of insanity, especially in such as are of a recent or acute character. Its chief disadvantages are the slowness of its action and the tendency of the action to be prolonged into the succeeding day, and to be followed by drowsiness, confusion, giddiness, or fatigue, and the serious cerebral and motor symptoms which are apt to follow repeated doses.—*Ibid.*, p. 444.)

THIOPHEN.—An unsigned paper in the *Revue de Thérapeutique Générale et Thermale*, 1892, No. 5, p. 70, gives an excellent *résumé* of this subject. Thiophen is a hydro-carbon of the aromatic series, a colourless, limpid oil, of faint odour, and miscible with water in all proportions, having as its symbol C_4H_4S. Speigler has used the thiosulphate of soda ($C_4H_3SNaSo_3$) and the iodide of thiophen ($C_4H_2I_2S$). The soda salt is a white powder, precipitated in the form of scales, contains 33 per cent. of sulphur, of a disagreeable odour which is usually not marked when in a 5 or 10 per cent. ointment. In prurigo complicated by eczema it can replace naphthol. The biniodide has been used as a substitute for iodoform. It crystallises in beautiful plates, insoluble in water, but very soluble in ether, alcohol, and chloroform. Its odour is characteristic, but not disagreeable ; gauze impregnated in a proportion of 10 per cent. emits a slight odour, rather agreeable and aromatic. This salt, in the laboratory, will prevent the

development of the *staphylococcus aureus*. It burns even to the third degree; so far as preventing odour and desiccation, is superior to iodoform. Hock has used it in various conditions, phlegmon, contused wounds, lacerations, compound fractures, mastitis, onychia, and caries, with very satisfactory results. There seems to be no poisonous action; it does not give rise to eczema, it even seems to cure it, when existing. Applied as a powder it is a vigorous disinfectant, and may even give rise to a burning sensation which may persist for half an hour. It will deodorise more energetically than iodoform, but it is a less active stimulant of granulation-tissue.—*The American Journal of the Medical Sciences*, July, 1892, p. 79.

TYPHOID FEVER—*Cold-Water Treatment of*.—At the Association of American Physicians, on May 24, 1892, Dr. G. Wilkins, of Montreal, in the first part of the paper bearing this title referred to the work of Brandt, Liebermeister, and others. Having himself obtained better results from this method than from any other in a like number of cases, he was induced to give his experience. The total number of cases treated by him with the cold bath was thirty-nine. He had not, however, adopted it exclusively, for during the same period he treated nine cases by what may be termed the expectant plan. The greatest number of baths given any one patient had been thirty-five. Nearly all patients objected to it; yet afterward they felt refreshed, and usually fell asleep. The temperature continued to fall for about half an hour. It usually fell altogether two or three degrees. The pulse was reduced from a few beats to eighteen or more. Two patients had died, one having had serious bronchial complications on admission. The duration of the temperature averaged thirty days; treatment was begun usually on the tenth day. The beneficial results were due in no small degree to reduction of the temperature, but also in large degree to the impression upon the nervous system. By action upon the vaso-motor nerves it caused the blood-vessels to contract, and forced the blood along and relieved internal congestion. Where the heart muscle had become degenerated it was possible it might be overwhelmed by the amount of blood suddenly driven to it. Further contra-indications were hemorrhage and peritonitis.

Dr. William Osler, of Baltimore, said the deaths in 32 cases treated symptomatically at Johns Hopkins, prior to July, 1890, had been 7; in 107 cases treated since that date by the Brandt method, the deaths had been 8. The results from the cold-water treatment had been practically those obtained in other large general hospitals, markedly better than by other methods. In only 89 of the 107 cases was the bath indicated or resorted to, as the temperature did not rise above 102.5° F.

Dr. F. P. Kinnicutt, of New York, said he had not the statistics of typhoid fever in St. Luke's Hospital with him, but he thought they confirmed the experience already given, that the cold-water treatment was attended by a much lower death-rate than any other. Indeed he thought it was the only method which could be entitled a treatment of typhoid fever. The largest number of baths, 175, were given a patient, son of a physician, who was the most ill of any whom he had ever known to recover.

Dr. Pepper went on to confirm the very excellent results related by others as attending the cold-bath method in typhoid fever, and said that where it could not be applied, much benefit was found in the cold pack. The labour of applying the bath was less, however, than that of the pack. He had introduced a collapsible tub, which could be used in private as well as in hospital practice, and hoped there would soon be statistics of collective investigation showing the value of the Brandt systemin private

practice. He also impressed the value of thorough friction following the bath.—*New York Medical Record*, June 4, 1892, p. 638.

[See also article by Dr. Graham Steell," On the Treatment of Fever by the External Use of Water," at p. 1 of this volume of the *Retrospect.*]

URIC ACID—*Spontaneous Liberation and Precipitation of, from Urine.*—The chemical reactions and physical conditions which are concerned in the production of uric acid concreations are both varied and complex. Uric acid exists in the urine in combination with the alkaline bases. In perfect health these combinations maintain their integrity, not only while the urine detained in the urinary channels, but even for some considerable time after it has been discharged. This, however, is not always the case. In certain contingencies these combinations are prematurely decomposed, their uric acid is set free, and is precipitated from the urine in the crystalline form. In calculous subjects this event takes place in the kidneys or bladder, and gives rise to the incidents of gravel. In less urgent instances, the precipitation takes place soon after the urine is voided, in the form of copious urinary deposits; but, apart from these pathological cases, and cases which hover on the pathological borderland, it may be shown that perfectly normal urines betray the same tendency. A considerable series of observations were made on this point with the urines of persons who were entirely free from any proclivity to calculous disorders. It was found that all acid urines, provided that they were guarded against septic changes, invariably deposited their uric acid sooner or later. The time of the occurrence of the precipitation varied greatly; it usually began within twenty-four hours after the urine was voided, sometimes in a day or two, and sometimes it was delayed for a week or even longer. When the process was at length completed, whether that was early or late, all the uric acid had disappeared from solution; the filtered supernatant urine gave not the slightest precipitate with hydrochloric acid, nor could there be detected in it, on evaporation to a small bulk and with careful search, any trace of uric acid. We must therefore recognise in normal acid urines an inherent tendency to the liberation and precipation of their uric acid. This tendency only assumes a morbid significance when the event occurs prematurely, while the urine is still sojourning in the kidneys or bladder. Viewed in this light, pathological gravel may be regarded as due to an exaggeration of conditions which prevail, in a less pronounced degree, in the normal state; and an elucidation of these conditions may be reasonably expected to throw a light on the etiology of gravel and calculus, and perhaps furnish hints which may be turned to therapeutical uses. The chemical reactions which are concerned in the spontaneous precipitation of uric acid in acid urines are very interesting to trace out. It is certain that uric acid always subsists in the unchanged urine as a quadriurate. The urine in which this substance is dissolved is a watery solution which contains a number of mineral salts. Among the salts the most important, in regard to the point under consideration, are the alkaline phosphates. These regulate, in the main at least, the reaction of the urine. The phosphates easily oscillate between the monometallic forms, or superphosphates, which have an acid reaction, and the dimetallic forms, which have an alkaline reaction. When the former preponderate, as is usually the case, the urine is acid; when the latter preponderate, the urine is alkaline. We have, therefore, in an acid urine the quadriurate existing in the presence of water and of superphosphates. These conditions ensure the ultimate complete liberation of the uric acid. The first step in the process is the splitting up of the quadriurate by the action of the water of the urine into free uric acid and biurate. By this reaction

half the uric acid is set free. But the biurate resulting from this reaction is immediately retransformed in the presence of superphosphate, by a double decomposition, into quadriurate. Two atoms of biurate with one atom of superphósphate (monometallic phosphate) change into one atom of quadriurate and one atom of dimetallic phosphate, according to the subjoined equation :

$$\underset{\text{Biurate.}}{2\,(M\bar{H}u)} + \underset{\substack{\text{Monometallic}\\ \text{phosphate.}}}{(MH_2PO_4)} = \underset{\text{Quadriurate.}}{(H_2\bar{u}, M\bar{H}u)} + \underset{\substack{\text{Dimetallic}\\ \text{phosphate.}}}{(M_2H\ PO_4)}$$

These alternating reactions—breaking up of quadriurate by water into biurate and free uric acid and recomposition of quadriurate by double decomposition of biurate with monometallic phosphate—go on progressively until all the uric acid is set free.—Sir William Robert's Croonian Lectures, *British Medical Journal*, June 25, 1892, p. 1347.

URIC ACID GRAVEL AND GOUT—*Their mutual relations.*—There is no doubt that there exists a special relation between uric acid gravel and gout ; and the circumstance that uric acid figures as a common factor in both has led certain persons to the opinion that the two complaints are substantially one and the same. This notion is certainly not correct ; and from a therapeutic point of view it is, I believe, a mischievous notion. It is a matter of common experience that many gouty people are never troubled with gravel, and, conversely, that many subjects of gravel are never troubled with gout. In both complaints there is an aberration of uric acid : but the error is essentially different in the two cases both in regard to its site and in regard to its nature. In gout the error occurs on *this* side of the kidneys, in the blood and tissues, and the uric acid is precipitated in state of combination as a biurate ; in gravel the error occurs on *that* side of the kidneys, and the uric acid is precipitated in the urine and in the free state. In the former the deposition takes place in the true interior of the economy, in the latter the deposition takes place in what is, strictly speaking, the exterior of the economy, that is to say, on the surface of a doubling of the external integument. These differences are, I believe, radical, and involve important distinctions both in regard to pathology, and in regard to treatment. The fact that gout and gravel sometimes exhibit a kind of vicarious correspondence—that the one complaint alternates with the other at different periods in the lifetime of the same individual, or in successive generations of the same family—while indicating an undoubted relation, indicates also at the same time as essential distinction. Speaking from a somewhat long and large experience of these ailments, I cannot recall a single instance in which a paroxysm of gout and a paroxysm of uric acid gravel broke out synchronously, and Sir Alfred Garrod, with a longer and still larger experience, gives me his testimony to the same effect.—*Ibid.*, p. 1349.

[See also articles by Sir William Roberts, at pp. 8–15 of this volume of the *Retrospect.*]

URIC ACID—*Its Salts.*—There are three orders of uric acid salts. In addition to the neutral urates and biurates, which have long been recognised, there exists a third order—namely, the quadriurates, which in reactions and chemical constitution differ widely from the other two. The neutral urates, from their mode of origin and reactions, can not, with our present knowledge, be regarded as having any possible concern in the vital history of uric acid. The biurates, although known pathologically as constituents of gouty concretions, are not really physiological constituents, either of the blood or of the urine. On the other hand the quadriurates

exist normally in human urine and in the urine of birds and serpents. When uric acid is brought into relation with the bodily fluids—with the blood, lymph, and synovia—it enters into solution in the first instance, not as neutral urate, nor as biurate, but as quadriurate. From all these considerations it would appear that whenever and wherever uric acid exists in the healthy organism it exists exclusively as a quadriurate. The quadriurates may therefore be regarded as being in a special sense the physiological salts of uric acid, and as constituting the only form in which uric acid subsists in the living body in the normal state.—*Ibid.*, p. 1347.

AFFECTIONS OF THE NERVOUS SYSTEM.

ANÆSTHESIA IN SPINAL CORD LESIONS, HYSTERICAL PARALYSIS AND PERIPHERAL NEURITIS.—Charcot and his pupil, Souques, have described the area of anæsthesia in hysterical paraplegia, in paraplegia produced by hypnotic suggestion, and in the analogous form of functional paraplegia occurring after railroad and other injuries, and included under the general name of traumatic neurosis or traumatic hysteria. He says: "In front the limit of anæsthesia is represented by a line which follows the fold of the groin on each side to the anterior spine of the ilium, *exclusive of the genital organs;* on the back of the line follows the insertion of the muscles of the buttocks exclusive of the V-shaped area over the sacrum." It will be noticed how entirely different this area of anæsthesia is from that due to any of the organic lesions described here. And the escape of the genital organs in the functional cases is also a most important point of diagnosis between hysterical and organic paraplegia. The study of the area of anæsthesia, therefore, not only enables us to separate organic cases of spinal-cord disease from functional and hysterical cases of a paraplegic kind. Multiple neuritis is sometimes attended by anæsthesia of the extremities. The anæsthesia is limited, however, to the hands and feet, or if it extends up the limbs it is limited by a line drawn around the legs or forearms below the knees or elbows. It never resembles in its distribution the area of anæsthesia produced by lesions of the spinal cord. Nor can the anæsthesia from injury of special nerve-trunks be confounded with that due to spinal disease, as a reference to any diagram of the distribution of the cutaneous nerves will show.—Dr. M. Allen Starr, *American Journal of the Medical Science*, July, 1892, p. 32.

[See also article "On Local Anæsthesia as a Guide in the Diagnosis of Lesions of the Lower Spinal Cord," by Dr. M. Allen Starr, at p. 31 of this volume of the *Retrospect.*]

BELL'S PALSY—*Secondary Contracture in.*—Dr. W. Evans has published a paper on some clinical features of Bell's palsy as illustrated by three cases. He points out that while it is generally possible to give a favourable prognosis in this trouble, unless there may be reasons for suspecting serious lesions of the nerve, there are cases which refuse to respond to treatment. After a few days the affected muscles begin to waste and to show the usual reactions of degeneration. After a time it will be noticed that the corner of the mouth is slightly drawn, and the palpebral fissure diminished in size on the paralyzed side—the phenomena of secondary contracture. His conclusions from a study of the three cases are that secondary contracture is not an infrequent sequel to Bell's palsy; that it may come on even after apparent recovery; and that it may exist and the patient still possess good use—in some cases indeed extraordinary use—of the affected muscles.—*Journ. of Nerv. and Ment. Diseases*, pp. 419-422, vol. xvii., 1892.—*The Practitioner*, September, 1892, p. 226.

CEREBRO-SPINAL MENINGITIS.—In the spring number of *Brain*, 1892, Trevelyan records thirteen cases of the non-epidemic disease with eleven necropsies. In no case was tubercle found after death, and in only one instance was there otorrhœa during life. The occasionally rapid course of the disease, and the ease with which it may be overlooked, are referred to. Under the morbid anatomy it is pointed out that the chief seat of the disease is in the subarachnoid tissue, and that the exudation is most plentiful in the dorsal and lumbar regions of the cords because this tissue is most abundant there, whereas there may be none in the cervical region. The character and extent of this exudation in cases which recover are discussed, and the importance of a more systematic examination of the cord dwelt upon. Of the thirteen cases, six were examples of the primary disease, two complicated acute pneumonia, one was associated with proliferative endocarditis, and in another case these three diseases existed together. The relationship of these diseases is then discussed, and the probability of the same *materies morbi* (as, for instance, the pneumococcus infection) being able to produce them is referred to. No bacteriological investigation was made in these cases. In a most rapidly fatal case (ix) the disease supervened on diphtheria. The occurrence of cerebro-spinal meningitis after such infective diseases as enteric fever, measles, influenza, is next illustrated. In case xii profuse otorrhœa occurred in the course of the meningitis, and at the necropsy no bone disease was found. The possible spread of the inflammation from the meninges to the middle ear is then alluded to, and the mode of origin of meningitis secondary to ear disease without any bone affection touched upon. Cerebro-spinal meningitis after head injuries, but without fracture, is next referred to. Case xiii was an example of the disease occurring after a comparatively trivial operation on the throat. Other such cases are cited, and an explanation of the connection, if any, between the events sought for.—Epitome of the *British Medical Journal*, May 21, 1892, p. 81.

EPILEPSY—*Surgical Treatment of*.—At the American Neurological Association, on June 22, 1892, Dr. Sachs gave a record of his joint experiences with Professor A. G. Gerster in the surgical treatment of epilepsy. The cases operated upon were selected with considerable care. They were either of distinctly traumatic origin, or such in which a strictly localised convulsion pointed to a limited focus of disease. Cases of general epilepsy of non-traumatic origin were not subjected to operation. In regard to the determination of the brain areas to be operated upon, it was the custom to map out upon the skull with the greatest care, in advance of the operation, the exact site of the various divisions of the motor areas. The speaker was now of the opinion that in most cases this was quite unnecessary, and that the application of the faradic current to the dura would help to localise centres much more accurately than any of the customary rules. The first and most notable result of the operations, as recorded by these observers, was that they could not claim a single decided cure. In several of the cases there had been a marked diminution of the attacks immediately after the operation; in some the improvement had lasted a few months, but in every single case the attacks recurred after a lapse of several months, or even less. If we sought for some special reason why operative procedure had accomplished so little, it was to be found in the fact that they came under notice after the epilepsy had been established for many years. It was now generally conceded that, though a focus of disease was the actual cause of the epilepsy, this epilepsy did not manifest itself as a rule until widespread changes had appeared throughout the entire brain. The time that elapsed between

infliction of the initial lesion and the development of these secondary changes corresponded quite accurately with the period of time between the traumatic injury, or the initial disease, and the development of epilepsy. The excision of the cortical tissue after the establishment of epilepsy seemed to be of questionable merit. The only hope from surgery was in the prompt interference, in all cases of traumatic injury to the skull, to remove the focus of disease before secondary changes had been set up.—*Med. Rec.*, July 30, 1892, p. 135.

HEREDITARY OR HUNTINGDON'S CHOREA.—Dr. Ernst T. Reynolds, of Manchester, records two well-marked cases of this affection in the *Medical Chronicle*, 1892, vol. xvi., No. 1. *Case* 1.—J. W., aged thirty-three years, labourer. Both maternal grandparents suffered from chorea, and paternal grandparents slightly. His mother commenced chorea at thirty-three years of age, and died at forty-five. His only sister, aged forty-two years, began with chorea about five years ago. Was himself healthy until the age of thirty. Never had rheumatism. Movements began about two years ago; have grown gradually worse, with remissions, but never complete intermissions. The muscles of the face, head, and neck are most affected, and speech is slightly hesitating. The intercostal and trunk muscles and the hands and toes are somewhat less involved. The knee-jerks are increased; other reflexes normal. Heart and lungs healthy. He says there are "plenty like him" in his native town. *Case* 2.—J. F., aged fifty-five years; whitesmith. Father began chorea at sixty, and died ten years later, the disease having continued until his death. No other members of the family appear to have suffered. Has himself had good health; never rheumatism. Fell six feet on to his back fifteen months ago. Movements began in the legs during the next three months. Hands and feet affected subsequently. At present the movements are general, just like those of ordinary chorea, except that they are somewhat under control. Speech coarsely hesitating, slow, and spasmodic. Mentally clear. Knee-jerks increased. Plantar reflex absent, other reflexes present; no muscular atrophies. Heart healthy.—*The American Journal of the Medical Sciences*, June, 1892, p. 703.

LOCAL ANÆSTHESIA IN DISEASE OF THE SPINAL CORD.—At the Association of American Physicians, Dr. M. Allen Starr, of New York, presented a paper entitled "Local Anæsthesia as a Guide in the Diagnosis of Lesions of the Lower Spinal Cord." Dr. Starr reported twelve cases that he had collected, including six that he had himself observed, in which lesions of the spinal cord were attended with definite areas of anæsthesia. From a study of these he endeavoured to show that a limited area of anæsthesia is produced by a limited lesion in the spinal cord; that as the lesion ascends the cord from its lowest limit, the area of anæsthesia extends in a definite manner upon the surface of the body; and that the situation and shape of the area of anæsthesia is a positive indication of the level of the lesion in the spinal cord. It appears that, as the centres of control of the bladder and rectum are uniformly affected together, they must be adjacent to one another. The control of the sphincters is lost when the lesion involves the lower three sacral segments, and the centres probably lie in the lower two segments of the cord. Seven concentric zones of anæsthesia were determined in conjunction with lesions of the lower part of the spinal cord. The *first zone* is oval-shaped, small in extent, and includes the perineum, the posterior part of the scrotum in males, the vagina in females. It also includes the mucous membrane of he rectum. The *second zone* is heart-shaped, with the apex above, and

includes the entire scrotum and posterior surface of the penis and mucous membrane of the urethra in males—the entire genitals of the female, except the outer surface of the labia majora and the mons veneris. The *third zone* involves a greater surface of the buttocks and extends down the back of the thighs over a triangular area, the apex of which is directed downward. This has been named the "saddle-shaped area," approximately coinciding with the surface of the seat in contact with the saddle when riding. A zone of anæsthesia of this shape is due to a lesion involving the fifth, fourth, and third sacral segments. The *fourth zone* is of a similar shape to the third, but more extensive, a greater surface on the back of the thighs being involved; and the anæsthesia extends in a band almost as low as the popliteal space. As the smaller zone is due to a lesion in the third sacral segment, and the next larger zone is due to a lesion in the fifth lumbar segment, it is allowable to conclude that this region corresponds with the second and first sacral segments. The *fifth zone* of anæsthesia includes the first four zones and extends down the back of the thigh through the popliteal space in a band, and then descends on the outer surface of the leg to the foot. In some cases it ends at the ankle, in others it involves the entire side of the foot, dorsum, and sole, and three and a half toes. When a lesion extends from the sacral into the lumbar cord the anæsthesia extends from the thigh down the outer side of the leg. This area then corresponds to the fifth lumbar segment of the cord. The *sixth zone* of anæsthesia is produced by a lesion of the third lumbar segment; the entire back of the thighs and legs is anæsthetic and the front of the thighs is also anæsthetic, except over a funnel-shaped zone that extends from above downward, the narrow tube of the funnel reaching along the shin even to the foot. This zone will probably later be separated into two separate parts corresponding to lesions of the fourth and third lumbar sections. The *last* and *largest zone* of anæsthesia is produced by a lesion of the four lower segments—that is, by a destruction of all but the first lumbar segment of the cord. The line of anæsthesia is much lower in front than behind, and follows the line of Poupart's ligament. It is only when the first lumbar segment of the cord is invaded that the abdominal wall becomes anæsthetic. From this level upward the zone of anæsthesia extends around the body in a girdle, and there is no difficulty in locating the level of the lesion in the dorsal cord. In all of these lesions and areas of anæsthesia, the anus, the perineum, and the genitals are included in the insensitive region. It thus becomes evident that a careful study of disturbances of sensation is a valuable aid in the diagnosis of the situation of lesions in the spinal cord and cauda equina. It is, however, to be remembered that anæsthesia is but one of a series of symptoms entering into that diagnosis, and that the condition of the reflexes and the power, tone, and electric reactions of the muscles are not to be neglected in the examination of any case. It is only when all of the signs of a local lesion coincide that the diagnosis is an absolute one.—*Medical News*, June 4, 1892, p. 634.

[See also article by Dr. M. Allen Starr, at p. 31 of this volume of the *Retrospect*.]

POTT'S DISEASE—*Paraplegia in.*—Paraplegia as a complication of Pott's disease too often occurs, although in 133 cases treated here as inpatients I find it noted in only 10; paresis is mentioned in 8 cases. Of the 10 cases 7 recovered, while of the paresis cases 6 are recorded as recovered, no mention being made in the seventh of the paresis; probably it had disappeared. The lower extremities generally alone suffer, motor power being often completely lost, while sensation may be impaired but is

seldom lost. Control over the sphincters of the anus and bladder is often lost; the knee-jerk is generally absent. The upper extremities are also in cervical disease occasionally palsied, yet they may recover. Spontaneous recovery under rest treatment is the rule even after a very long interval. The cause of the palsy is generally a pachymeningitis and not displacement of the vertebræ. Hence the contrast in prognosis between palsy from injury (fracture dislocation) and that from caries. In the treatment of paraplegia rest and extension produce the most encouraging results. They may be applied when the disease is lower dorsal or lumbar, by weight extension in the recumbent position, or when it is above this by suspension from the head, and, if the body be heavy, also by the arms. Macewen advocated operative interference in pressure paralysis and operated by removing the laminæ and spinous processes. This operation has now been done some score of times, with a fatal or negative result in many cases. It is probable that some at least of the successful cases would have recovered under other treatment, and, as Lovett and Taylor have recorded, that when palsy came on under treatment every case studied by them recovered, and that of all cases 83 per cent. recover without operation, it must be plain that the field for operation is a narrow one, applicable to otherwise hopeless cases. After years of palsy even patients may recover without operative interference. In one case under my care recovery occurred after two years of palsy.—Mr. Muirhead Little, *The Lancet*, July 23, 1892, p. 186.

[See also article by Mr. Muirhead Little, "On the Treatment of Uncomplicated Pott's Disease," at p. 129 of this volume of the *Retrospect*.]

Rheumatism and Chorea.—The following conclusions are appended to an interesting paper by Drs. Walton and Vickery, of the Massachusetts General Hospital:—1. Neither rheumatism nor heart disease is essential to chorea. 2. The preponderance of evidence points towards the conclusion not only that rheumatism and organic heart disease conjointly appear more frequently in the choreic subject than can be accounted for by coincidence, but that the same is true of each of these affections separately. It follows, therefore, that (*a*) rheumatism predisposes to chorea, and (*b*) organic heart disease has the same tendency. 3. (Drawn from the observation of others.) Fatal cases are generally associated with organic heart disease, and probably with organic disease of the central nervous system (notably cerebal emboli). 4. There is a large class of functional cases—largely reflex, and fostered by circumstances tending to produce functional symptoms in general. 5. The pathological connection between rheumatism and chorea, excepting in the cases where emboli are produced by accompanying endocarditis, is still obscure; probably no one theory is applicable to all cases. 6. The mechanism by which the peculiar phenomena of chorea are produced is unknown.—*The American Journal of the Medical Sciences*, May, 1892, p. 530.

Tabes Dorsalis—*Destruction of the Septum Nasi in.*—At the Leeds and West Riding Medico-Chirurgical Society, on March 18, 1892, Dr. Barrs showed a case of slow, quiet destruction of the septum nasi and hard palate of tabetic origin. The patient, a man aged 33, came to the public dispensary ten years ago complaining of his nose. A perforation of the septum was then discovered, and had gone on slowly and quietly enlarging. He had at this time unequal pupils and severe abdominal pains, but his knee-jerk was good. During the ten years all kinds of treatment have been tried in vain. Mercury and iodide of potassium had been given for considerable periods without any effect. The following signs of

tabes were now present:—(1) Romberg's system, (2) loss of knee-jerk, (3) unequal pupils and loss of pupil reflex, (4) concentric diminution of the field of vision, (5) intense abdominal pain, (6) loss of testicular sensation, (7) occasional difficulty in micturition. No history of syphilis could be elicited, and there was no reaction to efficient antisyphilitic treatment. He had always been very anæmic. There was no lead poisoning. Mr. Jessop referred to four cases of non-syphilitic peforation of the septum which he had published, but in these the mischief was limited, and involved nothing beyond the septum nasi. In reply to questions as to the diagnosis from syphilitic ulceration, Dr. Barrs pointed out that there was no affection of the nasal bones; the soft palate was not involved, and there was no ozæna or discharge.—*British Medical Journal*, April 9, 1892, p. 768.

TABES DORSALIS—*Its Causes.*—Tabes dorsalis is a disease of mature age, which shows itself rarely in infancy or in advanced years, and which is notably more frequent in males than in females. Congenital neuropathy contributes certainly to its development, but it is altogether exceptional that tabes is the product of direct heredity. A certain number of well-known facts support the belief that occasionally tabes dorsalis is the result of cold and humidity, forced marches, venereal excesses, and traumatism. But the number of these cases is relatively small in comparison with those in which tabes dorsalis appears in the syphilitic, and most frequently without the intervention of any other apparent cause. It is now an established fact that the great majority of the tabetic have a history of antecedent syphilis. It is not proved, but it is extremely probable that syphilis has a direct or indirect influence on the development of tabes dorsalis. When this disease appears in the syphilitic, it is certain that the intervention of syphilis is not necessary for the development of the disease. The proof of this lies in those rare cases of tabes in which syphilis had been contracted after the appearance of the tabetic symptoms. This might raise the question of syphilitic reinfection.—Dr. Raymond, L'Hôpital Lariboisierè Paris, *Medical Press and Circular*, July 27, 1892, p. 83.

TABES DORSALIS—*Treatment by Bonuzzi's Method.*—In the *Revue de Thérapeutique Générale et Thermale*, 1892, No. 2, p. 25, we find a clear and concise statement of this method, which, it is hoped, will yield results as satisfactory as those attributed to suspension, without, however, exposing the patient to the same dangers, nor indeed requiring the use of any apparatus whatsoever. The experiments upon the cadaver have shown that the mechanical distension undergone by the spinal cord is three times as great in this method as in suspension. The patient lies upon the back, head maintained in an elevated position by means of a bolster. The lower extremities are flexed upon the body through a semicircle, the knees being placed upon the chest of the patient, the legs being held straight; the operator, seizing the diverging ankles, carries them strongly towards the floor. The result is, that the vertebral column is strongly flexed forward. This position must be attained with care, for it gives rise to backaches and swellings of the posterior aspects of the thighs, due to intra-muscular hemorrhage. Benedikt reports a case where attacks of syncope and vomiting for many hours, with adynamia for several days, followed this treatment. It also has a greater effect upon respiration and circulation than does suspension; but the distention to which one subjects the trunk and limbs can be readily graduated, and, if necessary, it can be immediately terminated. Benedikt reports that the gait of the patients was greatly improved, and the neuralgias marked and constantly relieved.—*The American Journal of the Medical Sciences*, May, 1892, p. 573.

AFFECTIONS OF THE CIRCULATORY SYSTEM.

ANEURISM—*Treatment by Extirpation.*—Dr. Kübler (Tübingen) contributes a valuable paper on this subject, with three illustrative cases in which Prof. Bruns practised the operation, and a *résumé* of 37 cases published by various surgeons. Of the 40 cases collected by Dr. Kübler, 28 are arterial and 12 arterio-venous aneurisms; 11 are of spontaneous origin; 29 resulted from traumatism. As to the site of the tumour, 5 are of the femoral, 9 brachial, 4 ulnar, and the rest of other vessels. As the result of treatment by extirpation, cure was obtained in 39 cases; only in 2 was there any considerable suppuration. In no instance was there any threatening of hemorrhage after the operation, and as regards the risk of gangrene of the limb, Kübler notes that in nearly all the cases the rapid restoration of the circulation was most marked, this point being of peculiar interest in a case reported by Wahl, where, after extirpation of a femoral arterio-venous aneurism, the *pre-existing* œdema of the leg rapidly disappeared, and large ulcers very soon healed. Kübler combats the notion that injury to the vein during the operation necessarily increases the risk of gangrene. Of 21 cases in which the vein was interfered with either by ligature or resection, only 1 suffered from gangrene, and that only to a limited extent. This patient was the only one of the 40 to suffer in this way. Kübler places the death-rate in these cases at 2 per cent., while Delbet, in 1882, placed it at 11 per cent., as compared with 18.75 per cent. after ligature. He concludes that a patient treated by this method is saved from a series of dangers which are associated with the operation of ligature for aneurism; from the inflammation and suppuration of the sac, so frequently after ligature; from the possibility of contingency of rupture of the sac and hemorrhage, following on these inflammatory changes. The nerve disturbances—trophic, sensory, and motor—improve after the radical treatment if extirpation has been adopted, while after ligature they are occasionally made worse. As regards the curative value of the methods, Kübler insists that with all its concomitant dangers ligature affords the least guarantee for permanent cure; the operation of Antyllus is more favourable, but healing is apt to be delayed by suppuration of the sac; extirpation, he is assured, affords the best results as regards healing and cure; it is certainly a more difficult procedure to carry out, but yet should be preferred in all "peripheral" aneurisms in which the question of operative treatment is to be considered.—*Beitrage z. Klin. Chirurg.*, ix. Band, 1 Heft.—*Edinburgh Journal*, October, 1892, p. 391.

ANGINA PECTORIS OF HYSTERICAL ORIGIN.—At the clinic for diseases of the nervous system, in the Salpêtrière, Paris, Professor Charcot treated of angina pectoris of hysterical origin. He said that the hyperæsthetic hysterogenic zones that have their seat in the spinal column, and the zones situated in the left intercostal region, giving pleuralgia, can also give rise, by irradiation, to a certain painful phenomenon, sometimes called "pseudo-angina pectoris." M. Landouzy had showed the possibility of the coexistence of hysterical angina with organic heart disease. He called attention to the following peculiarities in the dynamic form of angina in which it differs from the organic type. It usually appears in patients under forty years of age, in contrast to the organic form. It occurs more frequently in females, and is often the first symptom seen of hysteria in certain cases. The symptom is tenacious: it will run through a long course of hysterical troubles. The attacks occur frequently. The beginning of the symptoms is mostly sudden and at night, a feature which is not usual in real angina. During the attack the state of the heart and pulse is most variable. The respiration undergoes almost complete arrest,

with dyspnœa and oppression. The mental state is one of irrepressible terror, with tendency to fainting—"a dream" is going on during the attacks. The symptoms are brought on by some moral impression, as anger or annoyance of some kind, while in true angina it is more often a forced march, or some physical cause, that brings on the real attack, which, by the way, is during the day, and not at night. In the organic form the pulse and respiration remain calm, as a rule, while the contrary takes place in the hysterical form, which terminates with other hysterical phenomena. Pressure on a hysterogenic zone will bring about an attack of angina pectoris of hysterical origin.—*International Medical Magazine*, vol. i., p. 45, 1892 ; *The Practitioner*, June, 1892, p. 458.

Aortic Disease—*Digitalis in.*—In the early stages of aortic incompetency the heart is well fed, every part of it is flushed with blood which, from the increased size of the blood-wave and the position of the coronaries, must be at first at all events at an abnormally high pressure, the nutrition of the heart is specially well provided for, there are no symptoms, and no treatment is required. When from any cause however the compensation is ruptured, an aortic heart will be found as amenable to the beneficial influence of digitalis as any other failing heart, but larger doses are required, but little influence is produced by less than three times as much as would suffice for a mitral heart. Even should the pulse under treatment become abnormally slow, which is not at all usual and certainly not needful to secure benefit, we may rest assured that excessive regurgitation is not then promoted, and though sudden death is not at all unlikely to happen in a badly compensated aortic heart, whether it is treated with digitalis or not, digitalis is never to blame for this. On the contrary, the judicious use of digitalis is the most efficacious treatment in all cases of failing heart, whether that failure be accompanied by aortic or mitral regurgitation. In failure dependent on arteriosclerosis alone, the tonic influence of digitalis on the heart is hindered unless we combine it with some drug which unlocks the arterioles, and so prevents an increase of the blood pressure, already abnormally high.—Dr. G. W. Balfour, *British Medical Journal*, June 4, 1892, p. 1183.

Atheromatous Disease of Arteries.—[Dr. McCrorie appends the following conclusions to his important investigations into this subject.] (1) The condition of the superficial vessels is the best guide we have at present to the condition of the deep vessels, but this does not provide us with an infallible index. (2) Tortuosity or rigidity of the temporal, radial, brachial or femoral, points to atheromatous diseases somewhere in the vascular system ; but one, or all, of the deep vessels may be diseased, even extremely, and the superficial vessels be perfectly normal. (3) A tortuous or rigid temporal does not necessarily mean that the cerebral vessels are atheromatous, but it is well to presume that they are so. (4) The femoral is a truer index to the condition of the deep vessels than the radial, as it is more frequently diseased—the disease seemingly spreading from the aorta through the iliacs to the femoral. (5) The presence of Bright's disease suggests the probability that atheroma is also present, but it may be present in the absence of renal disease. A rheumatic or gouty diathesis would suggest its possible presence, but little reliance can be placed upon the presence or absence of a syphilitic or alcoholic history. (6) A pulse of high tension which cannot be accounted for in any other way, and the characteristic sphygmographic tracing, point to tube-like rigidity of the aorta. The arteries, however, may be atheromatous, and neither pulse nor tracing give any indication of the presence of the disease.

(7) Very little guidance is afforded by the presence or absence of the arcus senilus, or the so-called "atheromatous expression." The presence of the former, however, would suggest the possibility of arterial degeneration. (8) In the absence of all of the above signs, the symptoms which point to defective nutrition of any organ, or organs, must be carefully considered. By a process of exclusion of other causes which might give rise to said symptoms, we may arrive at an accurate diagnosis. (9) The arteries may be diseased, even extensively so, and neither signs nor symptoms indicate the presence of the disease, until rupture or other grave result proclaims unmistakably its presence.—*Glasgow Medical Journal*, September, 1892, p. 170.

CARDIAC ASTHENIA FOLLOWING INFLUENZA.—At the Clinical Society, on March 25, 1892, Dr. Burney Yeo called attention to the frequency with which cases of notable cardiac asthenia had been observed to follow attacks of epidemic influenza. The circumstances under which these cases occurred and the symptoms which characterised them were detailed. Two instances of aortic regurgitant murmurs developing after influenza attacks were briefly quoted, and a remarkable case which has been under his care in King's College Hospital was related. A dark-looking, well-built man, aged 38, an oil presser, had always had good health until suddenly attacked with dyspnœa and palpitation about three months before admission. His chief symptoms were very great irregularity of pulse and heart beat; anasarca of the lower extremities; albuminuria (which completely disappeared after two or three days' rest in bed); great enlargement of the liver; a large effusion into the right and a smaller effusion into the left pleura. Nothwithstanding all this, the patient's general condition was good. He had no pain, no fever, no rise of temperature; his tongue was perfectly clean, his appetite good, his bowels regular, his head clear. A careful clinical analysis of his symptoms traced them all to a rapidly-produced acute cardiac asthenia with dilatation. There was no evidence of any valvular disease. The rarity of such a condition was pointed out, and it was urged that the only way of accounting for it must be the preceding occurrence of some infective disease, the original symptoms of which were so slight and casual as to escape observation. It was ascertained that during the epidemic of last spring he had been laid up for three days with pain in his back. The possibility of the origination of such cases in sclerosing adenitis of the coronary vessels, the result of influenza, was mentioned. Some observation by Huchard and his views on this subject were referred to, especially as to the dependence of those phenomena on lesions of innervation. Some remarks on the most appropriate treatment of these cases concluded the paper.—*British Medical Journal*, April 2, 1892, p. 712.

CARDIAC PAIN—*Arsenic in.*—In all forms of cardiac pain, arsenic is a remedy of much value, from its action as an anti-neuralgic, and from its power of promoting the nutrition of the heart. It has no effect in the way of controlling existing pain, but it may lessen the severity and the frequency of future attacks, and I hold with Anstie and with Balfour that there is no more important prophylactic tonic against cardiac neuralgia than arsenic.—Dr. S. C. Chew, *Medical News*, June 18, 1892, p. 692.

[See also article on "The Different Forms of Cardiac Pain," by Dr. S. C. Chew, at p. 43 of this volume of the *Retrospect*.

MALIGNANT ENDOCARDITIS.—Taylor, in a paper on malignant endocarditis, in the *Guy's Hospital Gazette*, states that the existence of a murmur is chiefly of value in those cases in which previous cardiac disease is not

known to have been present. In the large proportion of cases in which chronic endocarditis takes on malignant properties distinctive characters could only be looked for in the appearance of murmurs in connection with valves previously unaffected, or in a change in the quality or character of already existing murmurs; the evidence would be much stronger in this direction when the valves on the right side were those freshly implicated. A change in the character or intensity of the murmur is not very often observed, occasionally it may acquire a musical pitch, but this would be by no means conclusive of the supervention of this form of endocarditis, and the chordæ may be ruptured without the murmur assuming a musical character. Occasionally there is no cardiac murmur. Pyrexia is a fairly constant symptom, the temperature generally being of a remittent type, high in the evening and falling to nearly normal in the morning; it is usually regular unless complications should supervene, but not infrequently the heart failure or cerebral symptoms are so prominent that little or no attention is paid to the temperature chart. The occurrence of embolism is one of the most important features and should always be carefully looked out for in a suspected case. The inflammatory lesions (whether due to embolism or merely septic is a moot point) most frequently associated with malignant endocarditis are nephritis, optic neuritis, and suppurative meningitis. Lastly, Taylor attaches a good deal of value to the existence of anæmia, which is often very pronounced, especially when the valves on the right side of the heart are affected.—Epitome of the *British Medical Journal*, August 13, 1892.

Mid-Systolic and Late-Systolic Mitral Murmurs.—At the Association of American Physicians, on May 24, 1892, Dr. J. P. Crozer Griffith read a paper entitled "Mid-systolic and Late-systolic Mitral Murmurs." He considered those murmurs that, though having the area of diffusion and the usual general symptoms of mitral regurgitant murmurs, yet do not occur until the middle or latter part of the systolic period. Three cases were reported. The first presented the symptoms of mitral regurgitation. The apex-beat was unattended with a murmur; then, after a pause, came a distinct musical murmur; and then, after another pause, the second sound. The case was thus a typical example of mid-systolic murmur. The second case exhibited a murmur just before the second sound. Its area of diffusion was entirely that of a mitral regurgitant murmur. It was so close to the second sound, and at times so short, that its true nature was at first not certain. This case was therefore a typical instance of the late-systolic murmur. The third case resembled the second in some respects. As in the second case, the murmur ran up to, but did not replace the second sound. Unlike the murmur in the second case, however, the murmur in the third case began earlier in the systolic period. It thus represents a combination of the mid-systolic and late-systolic murmurs. Murmurs of this sort are rare. But little reference is made to them in medical literature, and generally they are wrongly called "post-systolic." This term would only be applicable on the theory that the systole lasted only to the beginning of the "short silence," and that the silence was contemporaneous with relaxation of the ventricle. It has been maintained by several investigators, who have drawn their conclusions from cardiographic studies, that the closure of the aortic valve does, indeed, occur, not at the beginning of the diastole, but at a slightly later period. This view, however, presupposes the existence of a physiological aortic regurgitation. The recent studies of Martius, together with the older experiments of Ceradini, show that no such regurgitation takes place. The blood continues to stream from the ventricle until a very short period

of time before the second sound is heard. During this period the ventricle maintains its contracted state, a backward whirl of blood in the aorta brings the leaflets in apposition, and then the actual recoil, taking place with the beginning of the diastole, simply puts the closed leaflets on the stretch and produces the second sound. This theory, so well sustained by the studies of the investigators named, renders it impossible that a murmur heard just before the second sound occurs could be due to friction of blood on the roughened aorta during its recoil upon the aortic valve—this being the opinion advanced by Skoda and others after him. Such a murmur is physiologically impossible. The last two cases reported bear out this view from a clinical standpoint. The murmurs lasted quite up to the second sound, yet the cases were clearly instances of mitral regurgitation. The fact that the murmurs did continue so closely up to the second sound is also a proof that the "persistence time" of Martius, during which the ventricle simply remains contracted, must be of exceedingly short duration, as, indeed, this author admits. The very brief interval between the two parts of a double aortic murmur is also evidence of the briefness of this period. The murmurs in all three cases varied considerably at different times.' It would seem, then, very probable that regurgitation was taking place during nearly the whole of the systolic period, but that for some reason it only became evident as a murmur at certain portions of the period. In this respect the murmur is exactly analogous to the potential pre-systolic mitral murmur described by Bristowe.—*Medical News*, May 28, 1892, p. 611.

AFFECTIONS OF THE RESPIRATORY SYSTEM.

ASTHMA—*Treatment of.*—At the onset of a paroxysm, by means of a brush an application of a 5 per cent. solution of cocaine hydrochlorate is made to the nasal fossæ as high as possible, or the nares and throat may for four or five minutes be sprayed with the same solution. Should the attack not be aborted, from six to twelve drops of pyridine on a handkerchief should be inhaled. If the attack has reached its acme, a twelfth of a grain of morphine hydrochlorate is administered hypodermatically, and if necessary repeated at an interval of a quarter of an hour. For the constitutional condition, potassium iodide, belladonna, and arsenic are indicated. In case of emphysema, baths of compressed air should be employed.—Dieulafoy, *L'Union Méd.*, No. 48; *Medical News*, June 18, 1892, p. 696.

DYSPNŒA—*Its Treatment by Drugs.*—In the discussion upon this subject at the British Medical Association (Nottingham, 1892), Dr. Leech said: In many respiratory affections, as pneumonia and pleurisy, the dyspnœa is not usually the symptom which drugs are used to control; but in others; as in some forms of bronchitis and in asthma, the relief of dyspnœa, continuous or paroxysmal, is the main consideration. In the treatment of bronchitis, with such dyspnœa the presence or preponderance of moist lung sounds affords an indication of some value in treatment. If only dry sounds are heard, and yet dyspnœa is considerable, we may, in the absence of other causes, look upon it as caused either by a turgid condition of the bronchial mucous membrane, more or less lined, it may be, with adhesive mucus, or to spasm of the muscles surrounding the bronchi. Doubt has in late years been cast on the existence of such spasm, but, as Professor Fraser has pointed out, the marked relief which at times follows the use of the nitrites, that is, of drugs which relax the contraction of involuntary muscular fibre points to spasm of the bronchial muscle as the

most probable cause of some dyspnœic conditions, for there is no evidence that nitrites relieve by calming the central nervous system. There may in genuine asthma be a condition of diaphragmatic spasm, but in the paroxysmal dyspnœa of bronchitis the evidence of bronchial spasm seems strong. It is in the dyspnœa with dry lung sounds that the nitrites often give relief. Nitrite of amyl, as has long been known, may stop a dyspnœa attack, but the nitrites of ethyl and soda and nitro-glycerine are far more effective. The effect of amyl nitrite only lasts about two minutes, whilst the influence of the other nitrites and nitro-glycerine lasts three hours or more. I find a teaspoonful of a three per cent. solution of ethyl nitrite the most convenient form for administering a nitrite in dyspnœa. Failure of nitrites to relieve dyspnœic attacks may be due to the patient being refractory to the action of nitrites, which is not very uncommon, or to the dyspnœa being in connection with a turgid mucous membrane. For the relief of dyspnœa which nitrites have failed to cure the vapour of ammonia may be tried. The vapour may be inhaled with care from warm water or diffused in the room. When inhaled it tends to relieve that craving for cold fresh air from which dyspnœic patients so often suffer. This failing, some of the many powders which are formed for the relief of asthma may be tried. It is worthy of note, as Dr. Fraser has pointed out, that the vapour of a considerable number of the powders and cigarettes which are sold to relieve asthma contain nitrites. The vapour of some contain a pupil dilator, while a third class of powders give off vapours containing both nitrite and pupil dilator. Should opiates be given to relieve dyspnœic attacks? I have no doubt they relieve at times, but I follow Dr. Gairdner in the view that he has expressed that their administration is dangerous. Lobelia I do not rely much on. Nor have I found jaborandi or its alkaloid pilocarpin of much value. I think I have seen pilocarpin cause dangerously profuse secretion in the bronchi. When the dyspnœa accompanies a bronchitis with abundant moist rhonchi, nitrites are rarely of any value. Here ammonia and the vapours produced by burning mydriatic vegetable substances seem most useful. From the use of opiates in these cases especially I have seen more than one fatal result. To the value of iodide of potassium with expectorants in the treatment of both forms of bronchitis it is not necessary to draw attention. With regard to the treatment of dyspnœa in cardiac disease I will allude chiefly to one point—the value and safety of opiates. If there be no considerable lung complication, they must usually be given, and given freely, for the relief of dyspnœa, and especially to prevent that nocturnal dyspnœa and insomnia which is a source of so much suffering in advanced cardiac disease. Dover's powder is at times effectual, but subcutaneous injection of morphine is often necessary. Here, too, the nitrites are occasionally of value by dilating the vessels, and thus easing the work of the heart.—*British Medical Journal*, August 6, 1892, p. 295.

[See also article by Dr. Gairdner "On Dyspnœa and its Treatment by Drugs," at p. 25 of this volume of the *Retrospect*.]

Empyema—*Method of Opening a Bad Case.*—In any case it is well not to put the patient far over on to his sound side; but he should be brought over the edge of the table, and the operator should, if necessary, sit down. If the chest be very full, a good plan is to place the patient well over on the diseased side—semiprone in fact. It will then be found quite easy to reach the ninth rib outside the scapular line, by standing behind him. I believe a little chloroform is, on the average, the best anæsthetic to employ, that is, not enough to produce a very profound anæsthesia. An anæsthetic should never be used for simple aspiration. Ether is especially contra-

indicated where expectoration is a feature of the case, or where the chest is very full. It may be safely used in operating on old previously opened cases, or in those where the respiration is unimpeded and there is no expectoration.—Mr. Godlee, *British Medical Journal*, October 15, 1892, p. 829.

EMPYEMA—*Site of Election for Incision.*—I would reiterate an often expressed opinion that, in a complete empyema, no position is better—none, indeed, is so good—as that opposite the ninth rib, just outside the angle of the scapula, for (1) it is just above the level to which the diaphragm becomes adherent to the ribs when it has been drawn up as much as possible. (2) It is, therefore, very soon, if not at first, one of the most dependent parts of the pleural cavity when the patient is standing up, and it is always the most dependent part when he is lying on his back. (3) Because (and this is a much more cogent reason) I practically find that this is a much more advantageous position for the opening. I do not think I have ever had to open one in front because the posterior opening did not answer, but I have often had to supplement an anterior or lateral by a posterior opening, because the former did not drain the lower and posterior part of the pleura. After all, a practical reason is much better than a theoretical one, otherwise one might be overpersuaded by the theoretical assertion that the last part to close ought to be the side of the chest; or that as Nature so often selects the fifth interspace at the edge of the pectoralis major, for spontaneous rupture, we should follow her example; or we might be deterred by the assumption that the division of the latissimus dorsi would be a source of trouble afterwards, or that the angle of the scapula must get in the way. Far be it from me to assert that all cases will get well if the spot I advocate be chosen, or that none will recover if the axilla be selected. I only maintain that in the greater number of cases it is the best place.—*Ibid.*

GUAIACOL IN PULMONARY TUBERCULOSIS.—Drs. A. Weill and M. S. Diamantberger have practised intrapulmonary injections of two per cent. of this remedy in oil of vaselin (*Journal de Médecine de Paris*, 1891, No. 49, p. 530). They have never noted any complication other than a slight cough, with or without some usual expectoration; once only there was a scanty bloody expectoration, which soon stopped of itself. In well-marked cavities these injections *in situ* are indicated, and our authors have not hesitated to make them with pure guaiacol or in a concentrated solution with sterilised oil. They have also used hypodermatic injections, according to the formulæ of Guttmann and of Bouchard. For these injections a pure article must be used.—*The American Journal of the Medical Sciences*, April, 1892, p. 446.

INTUBATION AND TRACHEOTOMY.—Drs. Prescott and Goldthwaite (Boston) report 392 cases of intubation and 139 of tracheotomy done at the Boston City Hospital. Of the intubation cases eighty recovered (20.41 per cent.); of eighty-two primary tracheotomies eleven recovered; of thirty-six done secondarily to intubation three recovered; and of twenty-one after attempted intubation two recovered. In intubation the age of the child has important influence. Thus of those children who were under three years 14.63 per cent. recovered; of children from three to five, 23 per cent., from six to ten, 30.90 per cent. recovered. In successful cases the tube was worn for five days and eighteen hours on an average, the longest time it was worn being twenty-three days. "The younger the child the longer must the tube be worn." Thirty-seven of the eighty successful cases were seen at least a year and a half after the operation, and

showed no indication of anything due to ulcerative processes from the pressure of the tube.—*Boston Medical and Surgical Journal*, December 31, 1891 ; *Edinburgh Journal*, June, 1892, p. 1147.

PHTHISIS—*Creasote in.*—Dr. Beverley Robinson has used this remedy since 1888 with good success (*New York Medical Record*, 1892, No. 1112, p. 229). Nearly all of the general symptoms are benefited ; cough is diminished in frequency and severity, expectoration lessened in quantity and changed in quality, nutrition is aided, and he is sure that in several instances the bacilli have disappeared from the sputa. Locally the signs are often ameliorated. The drawbacks are that the stomach occasionally becomes intolerant, and in a few instances he has had his fears aroused that it might have an injurious effect upon the kidneys. He uses beech-wood creasote, commencing with one-half to one minim, and increases its frequency gradually from three or four times daily to every two hours, and has administered it to twenty-five drops in the twenty-four hours. He uses it in emulsion, or in whisky and glycerine, or with wild cherry. He employs it also in his inhaler in alcohol, in the proportion of one to eight. It can also be administered in the enteric pills of Flint, six to fifteen daily. —*The American Journal of the Medical Sciences*, June, 1892, p. 697.

PHTHISIS—*Hæmoptysis as a Cause of.*—Speaking upon 1,000 cases of phthisis Dr. Philip says :—In eight per cent. the patients have attributed the commencement of their illness to hæmoptysis. It need hardly be said, however, that it is impossible to accept the patient's statement as having much weight. Often when he is cross-examined it is discovered that other symptoms have really been present. Or in the absence of these, physical examination may show undoubted evidence of pulmonary disease. I fancy we are all agreed that a *phthisis ab hæmoptöe* is a *rara avis*, whose precedents merit an unusual degree of scrutiny. The caseation of a simple blood-clot will not now be seriously discussed by pathologists. And the experimental proof that blood (and other fluids) may be effused, accidentally or artificially, into the lung without producing phthisis affords striking commentary. Further, the frequent hæmoptysis which occurs in mitral stenosis, and the relative infrequency of accompanying or complicating phthisis, is important counter-evidence. I fear then, we must admit that the fact of the patient's citation of hæmoptysis as a cause offers little proof. I should add that, in addition to the eight per cent. we have been discussing, in 18.3 per cent. of the thousand cases which were examined by me, hæmoptysis had occurred once or more frequently after the onset of the initial symptoms, prior to the date of my examination.—*Edinburgh Journal*, May, 1892, p. 1012.

PLEURISY—*Treatment.*—Prof. Dujardin-Beaumetz, in taking part in the discussion upon this subject at the Académie de Médecine, Paris, is entirely opposed to the idea that a vigorous antiphlogistic treatment will jugulate a pleurisy, or even that it is of advantage—believing that, in spite of the fact that venesection has gone out of fashion, it is at the present day by no means indicated, and, moreover, it is likely to do harm, because, in a very large proportion, cases of the disease are of tubercular origin. The facts presented by Prof. Peter at a previous meeting, upon analysis, do not by any means show that the results of the present time are more unfavourable than in the time of Andral and Bouillard. In fact, he believes that we now treat this disease much better than formerly, because we practice, on suitable occasions, thoracentesis. Further, in empyema bacteriological examination of the pus give excellent indications for treatment and prog-

nosis. M. Dieulafoy believes that thoracic aspiration, properly performed, cannot result in harm to the patient by giving an opportunity for the production of an empyema; it not only aids the cure of the patient but frequently saves his life. He bases his choice of the time for operation not upon the duration of the disease, nor upon the presence or absence of fever, nor upon the presence of dyspnœa, but upon the quantity of effused fluid, of which he does not remove more than a quart, by aspiration at one sitting. In determining the death-rate, the fatal result when the patient succumbs to tuberculosis or cancer after a pleurisy due to these diseases as a starting-point, should be ascribed to the tuberculosis or cancer, and not be charged to the pleurisy. M. Harry makes a vigorous attack upon the doctrine that it is the disease that is to be treated, and insists that the condition of the patient is to be taken into consideration, not hesitating, indeed, in suitable cases, to employ leeches, or even venesection. He believes that the relationship of tuberculosis to pleurisy may be accidental, or that the latter may be a predisposition to the former from its interference with the nutrition of the lung. M. Sée believes that it is a self-limited disease, like pneumonia, erysipelas, or the eruptive fevers. He chooses the time for aspiration when, taking the natural course of the disease as a criterion, the expected diminution of the fluid does not occur, namely, about the twentieth day. He regards dyspnœa or cyanosis as valid grounds for aspiration at any stage of the disease.—*Bulletin de l'Académie de Médicine*, 1892, No. 18, p. 645; No. 19, p. 673; *The American Journal of the Medical Sciences*, September, 1892, p. 340.

PLEURISY—*Treatment by Salicylic Preparations.*—Dr. H. Köter discusses this very interesting question from a clinical standpoint. Having studied the work of Tetz, Engster, Drzewiecke, Deri, and Edgren, he reports thirty-two cases, divided into two classes: 1. Primary pleurisies, lungs apparently healthy. 2. Secondary pleurisies. Of the first class, he obtained favourable results in seventeen cases of the twenty-seven treated. He employed the soda salt in twenty-two grain doses, the acid in fifteen-grain doses, three or four times daily. He believes that, taking the results together, this treatment is a valuable one, in that it is not dangerous, and that it should be employed not only in simple (non-purulent), but as well in secondary pleurisies.—*Therapeutische Monatshefte*, 1892, No. 3, S. 117; *The American Journal of the Medical Sciences*, July, 1892, p. 84.

PLEURITIC EFFUSION—*Cardiac Displacement in.*—[Mr. Langford Symes appends the following conclusions to an interesting paper on this subject:] (1) That displacement of the heart may occur as early as the fourth day; that a moderate effusion can produce it; and that it may be preceded and accompanied by fainting on exertion. (2) That is occurs before protrusion of the intercostals, and the heart may even pulsate beyond the right nipple while they are not affected. (3) That, owing to the peculiar basic attachments of the heart, the apex can move in the arc of a circle, right or left; that the heart appears to rotate upon its long axis; and that this rotation in dexiocardia may increase the distinctness of its sounds and impulse. (4) That the heart does not return by the same route, but on a plane somewhat higher, and that this course, whether real or apparent, is dependent upon the non-expansion of the lung. (5) That extreme displacement may exist without either bruit or palpitation, and does not *ipso facto* necessitate paracentesis. (6) That it is extremely dangerous for the patient to undergo any exertion when it is so displaced, owing to the many risks of sudden death. (7) That decubitus on the sound side, or in a semi-dorsal position inclined to that side, appears to

lesson the tension of the fluid ; that it is always a grave symptom, and an urgent indication for paracentesis to relieve tension. (8) That *le bruit Skodique* is caused by the compression of healthy lung against the bronchus, thus acting as a better conductor of sound ; that it is closely connected with high tension ; and that it disappears when the intra-thoracic pressure falls. (9) That the dangers of displacement being intimately connected with the condition of the opposite lung, the extent of dislocation, *per se*, forms no criterion.—Mr. L. Symes, Kiltegan, Co. Wicklow, *Dublin Journal of Med. Science*, July, 1892, p. 16.

PNEUMONIA—*Treatment by Digitalis.*—The favourable results reported by Petresco induced Dr. Rudolph Hoepfel to treat fifteen patients with large doses. Besides the digitalis he made use of ice-bags, cold wet-pack, occasionally leeches, and in one case, for urgent œdema, venesection ; with the exception of one case, he did not use the so-called antipyretics. He does not find that these massive doses are poisonous, but that in one or two days the temperature falls and the symptoms, dyspnœa and pain, disappear ; that it shortens the duration of the disease two or three days ; that astonishingly frequent is the termination by lysis (eight cases in fifteen). For this valuable operation of digitalis he furnishes an explanation that the dyspnœa is relieved by the increased force of the heart, but that it is only indirectly an antipyretic, and not a direct one, as was stated by Petresco.—*Therapeutische Monatshefte*, 1892, No. 4, S. 177.—*The American Journal of the Medical Sciences*, July, 1892, p. 84.

TUBERCULOUS EMPYEMA AND PYOPNEUMOTHORAX.—Much caution should be observed in dealing with these cases, especially in adults. I do not say they are never to be freely incised, but I believe that, if the disease be quiet, a free incision will almost certainly accelerate the patient's death, and I would submit a method of dealing with these cases which, in two or more instances, has in my hands proved successful. Into the anterior part of the chest a needle is to be inserted connected with an india-rubber tube passing into a bottle containing some sterilised or antiseptic water—say, for example, concentrated solution of boric acid, or 1 in 4,000 sublimate solution—another needle, connected with the bottle aspirator, is then inserted into the most dependent part of the chest, and the pus is drawn off. After a while the fluid begins to flow in to replace the pus, and at last it will flow clear into the aspirator bottle. Then the anterior needle may be taken out, and the greater part of the liquid may be withdrawn from the pleura. A simple pneumothorax may be much relieved by drawing out the air with the aspirator. I refer to cases arising spontaneously. It is well known to be of service in traumatic cases.—Mr. Godlee, *British Medical Journal*, October 15, 1892, p. 829.

TUBERCULOUS LARYNGITIS—*Treatment of.*—A lecture by Dr. Gouguenheim (*Revue Générale de Clinique et de Thérapeutique*, 1892, No. 6, p. 82) gives a practical statement of the modern treatment of this grave condition. Pain is relieved by applications of cocaine, to twenty per cent. in aqueous solution, on cotton, with or without previous application of menthol. For caustic, nitrate of silver, as stick or in ten to twenty per cent. solution ; chromic acid, as pencil and not in solution. Perchloride of iron has not been used, and creasote is a painful remedy and not very sure. The galvano-cautery frequently yields good results ; submucous injections of cocaine or iodoform are sometimes useful. Scarifications and ablations may sometimes be required. Aphonia is benefited by iodoform by insufflation or upon moistened cotton, and lactic acid may be of wonderful value. Creasote in five or ten per cent. solution in olive oil,

injected in the laryngeal cavity by the syringe of Bachag is frequently of real service, while iodol, iodine, and salol are remedies of less value. Dyspnœa may call for tracheotomy. The general treatment consists in soothing remedies, opiates, chloral, antipyrine (which is not always well borne). Exalgine, a recent introduction to the clinic by Dr. Désiré, has relieved some very painful dysphagias.—*The American Journal of the Medical Sciences*, June, 1892, p. 696.

AFFECTIONS OF THE DIGESTIVE SYSTEM.

ACUTE, NON-ENTERIC, ENLARGEMENT OF SOLITARY AND AGMINATE GLANDS OF THE INTESTINE.—In the *British Medical Journal* for April 9, 1892, Drs. W. G. Smith and A. R. Parsons, of Sir Patrick Dun's Hospital, publish a series of cases of a rapidly fatal illness in which the only lesions found post-mortem were swelling of the agminate and solitary glands of the intestine, very similar to that seen in the earlier stages of the typhoid process, together with a corresponding enlargement of the mesenteric glands. All the cases occurred in children under five years of age. The onset was invariably acute, accompanied in some by vomiting and in some by pain preferred to the abdomen. Later on convulsive movements manifested themselves, generally unilateral at first, but rapidly becoming general. At times the movements were violent and attended by complete unconsciousness, the patient presenting the appearance of a child suffering from acute meningitis (the brain was always found healthy, post-mortem). There was an elevated temperature, frequent respirations, and frequent pulse. The duration varied from one hour to forty-eight hours, death appearing as a rule to result from exhaustion consequent on the violence of the movements. The authors give records of four cases, and say that a cursory examination of the literature of the subject has revealed no description which corresponds so closely with their specimens as that contained in *Rokitansky's Pathology* under the title of "The Non-typhous Intumescence of the Agminated and Solitary Follicles of the Intestine."

BILIARY DUCTS—*Catherisation of.*—After a lengthy discussion of the normal anatomical structure and the pathological changes produced in the biliary ducts and their relations to catheterism, Terrier and Dally (*Revue de Chirurg.*, 12e année, No. 2) come to the following conclusions: 1. In general the catheterisation is easier under pathological conditions, especially when the ducts are dilated by a stoppage in the valves or at the distal end of the cystic canal. 2. Nevertheless, in many cases, owing to he curvatures in the canal, the persistence of the valves or the opening of the duct upon the lateral wall of the sac, the catheterism is difficult. 3. Often the difficulty is insurmountable, often there is none. 4. Rules for the passage of the catheter are impossible, owing to the variations in the anatomical relations. The only way is to attempt the catheterism with a clear idea of the normal relations for a guide. 5. Forced catheterism, even with a finger externally to direct the instrument, is difficult and in all cases dangerous. 6. The treatment is not well enough understood as yet for its value to be appreciated. 7. The instruments to be used are olive-pointed bougies and Bénique's catheters, with or without stylets. Liver catheters are of rare use. 8. In all these operations strict antiseptics must be observed.—*The American Journal of the Medical Sciences*, July, 1892, p. 98.

DYSENTERY—*Ipecacuanha.*—The specific action of ipecacuanha in dysentery is due to its dual *modus operandi* on the intestines, as (*a*) muscular

sedative, and (*b*) secretory stimulant. The most characteristic symptom of dysentery is tenesmus (Dr. Woodward). There is such exaggerated peristaltic contraction of the rectum and lower portion of the colon that the patient goes to stool from thirty to two hundred times in the course of the twenty-four hours, or sits there for half an hour at a time, straining violently, but passing little or nothing (Dr. Hilton Fagge). The patient is under the delusion that he will pass something that will do him good. The fault does not lie in the irritant to be expelled, but in the irritability of the intestinal muscles. According to Heubner the average quantity of evacuation passed by each patient was found to be only from twenty-eight ounces to forty-two ounces. The great difficulty we have to deal with, then, in dysentery, is exalted peristalsis. Ipecacuanha meets the difficulty by acting as an intestinal muscular sedative. A large dose of ipecacuanha stops tenesmus quite suddenly and smaller subsequent doses prevent its return. With the return of the muscular coat to its normal condition the other coats lose their irritability and the accompanying inflammation coincidently subsides. The mucous membrane is then in a suitable condition for the second action of ipecacuanha to come into play —namely, secretory stimulation. We have now to deal with an enteritis, and here ipecacuanha acts in the same way as in bronchitis. Stimulation of the mucous membrane with secretion of mucous is effected by direct action on the peripheral endings of the gland nerves or minute ganglia (Dr. Whitla). Ipecacuanha has the same beneficial effect in dysentery, therefore, as it has in bronchitis. The action of ipecacaunha on the liver is that of a powerful stimulant. In dysentery the hepatic functions are in abeyance and bile is absent from the stools. Ipecacuanha directly stimulates the hepatic cells, so that very shortly after its exhibition the colourless slimy stools become feculent. In the words of Dr. Ewart, "Ipecacuanha is a non-spoliative antiphlogistic, a certain cholagogue and unirritating purgative, a powerful sudorific and a harmless sedative to the heart and muscular fibres of the intestines." According to this lucid and comprehensive description ipecacuanha is a perfect remedy for dysentery. In a certain proportion of cases ipecacuanha undoubtedly fails. Dr. Maclean says: "Where it fails it is because it has been given too late, when structural changes incompatible with life have taken place in the affected intestines, or from structural diseases of the spleen, liver, and kidneys, or the combined ravages of the malarial and scorbutic cachexias." In those cases where ipecacuanha fails when success ought apparently to attend its administration the fault probably is to be found in the diet. For three hours after the first dose of ipecacuanha only a little ice should be sucked and after that a little iced soda-water and milk. Beef-tea or bread, or very light foods, are fatal to the successful administration of ipecacuanha; and to this cause a great many of the failures of ipecacuanha are doubtless to be attributed. On the second day the ipecacuanha can be reduced in quantity and supplemented by salicylate of bismuth, quinine, naphthol, and opium. Milk should still form the staple article of diet. Later on farinaceous foods and soups may be carefully given, but a return to solid meat should be deferred as long as possible. Mr. Chowdhovry remarks "that the large doses of ipecacuanha, which have been found to be of great use in treating the dysentery of India, are often inadmissible by reason of the nausea thereby invoked preventing the patient from taking a sufficient amount of nourishment." Considering that the success of the treatment by large doses of ipecacuanha depends upon the condition of the patient in not taking any nourishment during the period of its administration, the failure in Mr. Chowdhovry's cases was evidently due

to the fact that his patients were trying to take a "sufficient amount of nourishment," thereby actually causing nausea and preventing a cure. There are cases where ipecacuanha fails when administered by the mouth which may be very successfully dealt with by ipecacuanha and opium enemata.—Dr. Hart, French Hospital, Suez, *The Lancet*, October 1, 1892, p. 771.

DYSENTERY.—At the Association of American Physicians on May 25, 1892, Dr. A. Brayton Ball, of New York, considered the "Symptoms, Complications, and Treatment of Dysentery." He first took up the differential symptomatology of (1) catarrhal colitis, (2) diphtheritic colitis, (3) amœbic colitis, (4) secondary colitis. The most marked characteristic of amœbic dysentery is the absence of uniformity of the symptoms. The duration of the disease is longer than is that of the other forms of dysentery, chronicity being a marked feature. Dysenteric paralyses have been observed. Paraplegia is the most common. The palsies usually develop rapidly, but function is soon restored. Exceptionally, the palsy is more protracted. In some cases, no doubt, other causes than the dysentery have been operative, such as multiple neuritis, for instance. Dysentery seems to predispose to the development of anæmia. A malarial complication is common. The febrile symptoms then usually display intermittency. The arthropathies sometimes observed in connection with dysentery may be considered as allied to other athropathies of septic origin. The treatment of dysentery is yet and must remain symptomatic. Ipecac has been extensively employed in India, and has reduced the mortality from fifty per cent. to fifteen per cent. The drug must be given in heroic doses. The treatment has not been largely adopted in the United States, where smaller doses are usually employed. The administration of large doses of opium is illogical and inadvisable. The cure of dysentery does not consist in a suppression of the symptoms. Calomel is no longer recommended. The reaction against calomel, however, has, perhaps, gone too far. Corrosive sublimate may be given in small doses. Treatment by the rectum is growing in favour. Suppositories of ice, or of cocaine, or containing astringents have proved beneficial. The methods of rectal irrigation were described. In one case, Dr. Ball successfully employed large injections of quinine in conjunction with bismuth subnitrate. The possibility of damage to, or rupture of, the colon should lead to caution. A full meat diet is to be recommended. The nutrition must be sustained.—*Med. News*, May 28, 1892, p. 612.

GASTRIC ULCER HÆMATEMESIS — *Treatment of.*— Hæmatemesis is naturally a most serious and troublesome symptom, though, as is generally known, it is rarely fatal. Its treatment is sufficiently well known. I will only refer to the total abstinence of food by the mouth as long as there is any vomiting of blood, and for a few days after all the vomiting has stopped, and to the administration of turpentine to check the hæmatemesis. Turpentine has for centuries enjoyed a great reputation as a styptic, but in the most recent treatises on gastric ulcer I do not see it mentioned. Yet I could cite several cases of hæmatemesis from ulcer, where the patient was pulseless, blanched to the extreme, and where ice, gallic acid, ergotin injections, and all other styptics had been tried in vain, and where the first dose of turpentine completely stopped the hemorrhage, and where the patient afterwards completely recovered. It may be given either in capsules or as an emulsion (one teaspoonful of turpentine beaten up with the white of an egg). It has been well borne in all cases in which it was given,

and I cannot speak too highly of its immediate and otherwise satisfactory effects.—Dr. Dreschfeld, p. 68., *Medical Chronicle*, May, 1892, p. 108.

GASTRIC ULCER—*Perforation in.*—Perforation of the ulcer into the abdominal cavity is almost always fatal. Yet there occur cases where the opening is very small, and where by a localised adhesive peritonitis the small perforation may be closed. I can quote several instances where, in a person suffering from gastric ulcer, sudden pain, great prostration with quick weak pulse, cold clammy perspiration—in fact, where all the symptoms of perforative peritonitis appeared—and yet the patient recovered. In one case fatal perforation occurred some weeks later, and the post-mortem examination showed, besides the fresh perforation, recent adhesions closing up the small opening from the previous perforation. The treatment therefore in all cases of perforation should be total abstention from food, except in the form of nutritive enemata, subcutaneous injection of ether—and, if the pain is severe, of morphia—injection of brandy into rectum, cold application to epigastric region, hot bricks to the extremities, and absolute rest in recumbent posture. The question of operation in cases of perforation is one which ought most certainly to be considered, but which is very difficult to decide on ; if there be great collapse, with quick small pulse, the operation may be of little avail, as seen from the published cases, and from several cases which have come under my notice ; and if there be little collapse and a fair pulse, recovery without an operation is possible, the operation in itself is serious, and may under certain conditions be very difficult. Recent publications show that the site of the perforation can be diagnosed with considerable certainty, and with recent methods in abdominal surgery the results are distinctly better ; if operation is decided upon it should be performed early. The perforation of an ulcer of the stomach into another part of the intestinal tract—the establishment of a bi-mucous fistula—may be beneficial if the ulcer bursts into a part of the small intestine, but if, as is mostly the case, the fistular communication is between the stomach and the transverse colon, then we may have either rapid emaciation or stercoraceous vomiting. The great advances in intestinal surgery make it quite feasible that such cases may be successfully treated by operation.—*Ibid.*

GASTROSTOMY.—Dr. Senn appends the following conclusions to a paper on this subject read in the Therapeutic Section of the British Medical Association, 1892 :—(1) Gastrostomy is indicated in all cases of cicatricial and malignant stenosis of the œsophagus and cardiac orifice of the stomach as soon as a sufficient quantity of food cannot be introduced into the stomach by simpler measures *per viam naturalis.* (2) Gastrostomy for malignant obstruction on the proximal side of the stomach, if performed at a time when the patient is sufficiently strong to survive the immediate effects of the operation, is a comparatively safe procedure, and adds from a few weeks to six or eighth months to the patient's life. (3) In the treatment of impermeable cicatricial stenosis of the œsophagus gastrostomy not only furnishes a new inlet for the introduction of food into the stomach, and thus prevents death from starvation, but it often proves a curative measure in such cases, as the gastric fistula can be utilised for another purpose—successful retrograde dilatation of the stricture. (4) The upper central part of the left rectus and the eighth intercostal space between the cartilages of the ribs are the most desirable points for the formation of the gastric fistula. (5) If the patient's strength warrants it, the operation should be done *a deux temps*, as it is safer to postpone opening of the

stomach until firm adhesions have been formed between stomach and the circumference of the external incision, than to establish the gastric fistula at once. (6) Fixation of the projecting cone of the anterior wall of the stomach in the abdominal wound is best secured by two long needles passed through the serous and mucous coats only, and suturing of the surface to the circumference of the wound. (7) Leakage from the fistula can be prevented most effectually by making the opening in the stomach small, by the use of an inflatable double rubber bulb through which the feeding tube reaches the stomach, or by making an oblique tunnel in the anterior wall of the stomach as devised and practised with success by Witzel. (8) Solid food should first be subjected to thorough mastication and insalivation, when it is transferred by the patient from mouth to a small funnel connected with the distal end of the feeding-tube, from where it is made to enter the stomach by its own weight, by blowing it through the tube or, finally, it is aspirated into the stomach by the patient's sudden expiratory efforts. (9) Mastication of food, as a preliminary step to its introduction into the stomach, satisfies, at least in part, the sense of hunger, which is not always accomplished even by liberal exclusive gastric feeding through the fistula.—*Medical Press and Circular*, August 10, 1892, p. 139.

INFANTILE DIARRHŒA—*Salicylate of Bismuth in.*—Mikhnevitch (*Med. Obozrenïe*, No. 6, 1892), having tried the salicylate of bismuth in fifty cases of diarrhœa in infants under two years of age, reports that, of the number, only two died (a boy of eighth months, with pelvic suppuration consecutive to intractable colitis; and an infant of five months, born prematurely, and exceedingly sickly since its birth). The following formula is recommended :—℞ bismuthi salicylici, gr. xxiv.; gummi arabici, 3 j; sacch. albi, 3 jss; terendo adde aq. dest., ℥ ij; fiat lac, tum adde aq. dest., ℥ iv. M. D.S. The bottle to be kept in cold water or ice, and to be shaken well before use. One or two teaspoonfuls to be given from three to six times daily. Each teaspoonful of the mixture contains about half-a-grain of the salicylate, which constitutes a normal dose (three or four times daily) for an infant of from six to eight months old. In cases of offensive diarrhœa the administration should be preceded by a dose of castor oil. The bismuth salt should be given regularly until the diarrhœa has completely subsided. It must be kept in mind, however, that in large doses the remedy is apt to induce perspiration with consecutive weakness (especially in exhausted children), hence a corresponding reduction of the dose may become necessary. In acute cases the remedy is useless, but in all of a week's standing or longer its effects are said to be excellent.—Epitome of the *British Medical Journal*, June 18, 1892, p. 99.

INGUINAL HERNIA—*Radical Cure by Bassini's Method.*—[Mr. Hulke publishes in the form of a clinical lecture an account of an exceptionally complicated case of inguinal hernia for the radical cure of which he performed Bassini's operation. We reproduce here Mr. Hulke's description of the operation.] The patient having been anæthetised, an incision from four inches and a half to five inches long was made parallel to and a short distance above Poupart's ligament, in the longest axis of the superficial part of the rupture, and the tissues were divided down to the sac. This was next detached from the aponeurosis of the external oblique muscle, and temporarily placed aside out of the way between a couple of flat, warm, moist sponges. The aponeurotic tendon was then split in the line of the external wound from the external abdominal ring outwards along the whole length of the inguinal canal, so that by separating with retractors the edges of the split the inguinal part of the hernial sac was exposed up to its very

neck at the internal abdominal ring. The sac itself was now slit open, the bowel contained in it was reduced, and the omentum, adherent and thickened, having been freed, was tied at the level of the internal ring, then cut through below the ligature and the stump returned into the abdomen. The sac was next carefully completely isolated from the other elements of the cord, tied circularly at its neck and then cut away, a small part of it only being reserved for the construction of a tunica vaginalis by sewing its edges together so as to form a small pouch for the testis. This done, a subcutaneous incision was prolonged from the inner end of the inguinal wound to the bottom of the scrotum so as to make a bed for the testis, which was pushed down into it and fixed there with a stitch. The outer border of the conjoined tendon and the fleshy lower borders of the internal oblique and transverse abdominal muscles were then drawn down and attached to the deep aspect of Poupart's ligament by a series of closely set buried sutures so as to closely embrace the cord at its passage through the internal ring and to cover the stump formed by the circularly tied neck of the sac. Next the edges of the split in the aponeurosis of the external abdominal oblique muscles were sutured together; and lastly the integument incision was similarly closed. It is scarcely necessary to say that throughout the operation and afterwards scrupulous attention to antisepsis was observed. Notwithstanding this on January 15th (one week after the date of the operation) some tension of the wound was apparent. For this two stitches were cut which allowed a free serous oozing. Four days later suppuration was present. This spread superficially a little way below the groin on to the thigh and above towards the flank, necessitating counter-openings and protracting the patient's recovery so that he did not leave the hospital until April 2d. For greater security he was recommended to wear a light truss and he was directed to return to the hospital if he felt any inconvenience. The patient returned in January of this year (1892) to ask if he might safely lay aside the truss. This he was told he might do except when engaged in very laborious work. The scar appeared sound, and it did not show any sign of bulging when he strained or coughed. The testis had not remained in the bottom of the scrotom, but it was well below the external abdominal ring. Here the presence of the large subcutaneous inguinal loculus of the sac, enclosing the testis; which was sessile, and not as occasionally suspended by a mesorchium, complicated and protracted the operation, making it more severe than it would have been under ordinary circumstances. Its duration might have been shortened by removing the testis, but this the patient was unwilling to lose, though a functionally useless organ. So far as the experience of a single case warrants me in forming an opinion, Bassini's method is more severe than some others, and I am inclined to reserve it for exceptional cases.—*The Lancet*, July 16, 1892, p. 132.

INTUSSUSCEPTION—*Operative Treatment for.*—Mr. Hutchinson publishes his most recent views on this subject under the following heads: Proposition I.—It is absurd to institute any comparison between treatment by insufflation or injection and that by laparotomy. The rule of practice ought to be invariably to try the former measures in the early stages. It is only when they have failed that laparotomy ought to be thought of. The two measures are not competitive, but the one is supplementary to the other. Statistical tables instituting a contrast as regards the relative success of the two measures are mere waste of labour. Proposition II.—Whilst fully admitting that insufflation and injection treatment ought to be tried first, it is to be borne in mind that these measures are not without risk. They are to be practised with judgment and cau-

tion, and not persevered in too long. In not a few instances when done too boldly, rupture of the bowel has resulted. Proposition III.—It is probable that there is not much reason for preference for insufflation, or injection of air, over injection of water. If the latter is done, the patient's body should be in the inverted position, at any rate during part of the time. As regards the details of the process, I prefer to do it by hydrostatic pressure rather than by a syringe, believing that it is more easy to estimate the amount of distensile force which is used. Proposition IV.—If the patient be an infant, say under two years of age, it will be well to be content with repeated attempts by injection. The results by laparotomy in infants have been so almost invariably fatal, that it is safer to trust to the other measures. Proposition V.—If the patient be more than two years of age, and a patient attempt at treatment by injection has failed, a prompt resort to laparotomy is to be recommended. It is desirable that this should be done early before the serous surfaces have become adherent, or the reduction of the incarcerated portion had been made difficult by swelling. Proposition VI.—In the performance of the operation the difficult part is the withdrawal of the incarcerated portion of bowel. It is very important to remember that this is often most easily accomplished not by traction of the upper end, but by pressure on the lower, or by the two at the same time. Proposition VII.—The older the patient, the slower in all probability will be the progress of symptoms in intussusception, and the longer the period during which it is practicable to effect relief by operation. Thus in adults an intussusception case may be protracted over weeks and even over months. The conditions present even after a very long interval may still be such as to permit of a successful operation. In formulating the above propositions I have made no reference to the question of diagnosis. It is usually easy. Then tenesmus, the bloody mucus, and, above all, the discovery of a tumour by manipulation through the abdominal wall, render the diagnosis of intussusception in a majority of cases very definite.—*Archives of Surgery*, July, 1892, p. 25.

JEJUNO-GASTROSTOMY FOR PYLORIC OBSTRUCTION—*Closure of Artificial Opening.*—Mr. G. T. Hankins, Surgeon to the Prince Alfred Hospital, Sydney, reports the case of a man, aged forty-five years, on whom he performed jejuno-gastrostomy by Senn's method for pyloric tumour. The patient made an excellent recovery, but at the end of seven months from the date of operation there was a return of all the symptoms, ending in the patient's death. At the post-mortem examination one silk suture was still *in situ*, the bowel was firmly adherent to the anterior wall of the stomach at the site of the operation, but the artificial opening was entirely occluded. Mr. Hankins says: As far as I have been able to ascertain, only one or two cases of closure of the new opening, verified by post-mortem examination, have been reported, one in particular by Mr. Stansfield in December, 1889; and as an aid to the diagnosis of such an occurrence in the future, it would be well to note that in the case under consideration the symptoms of recurring obstruction did not appear until three months after the operation. To prevent this accident Mr. Jessett speaks well of "button-holing" the incisions in stomach and intestine so as to coapt the mucous and serous layers before inserting the plates. The question is, would union between these surfaces take place readily if they were so treated? For my part I should be inclined to use broader plates with a wider aperture than I used in this operation, the dimensions of which were those given by Senn. I should transfix the coats of the viscera at the extremities of their long diameter, bring those corresponding with the short diameter of the plates through the incision without transfixing,

as by this means the edges of the new opening would be kept wider apart than would be possible by the more usual method. Then comes the question, supposing the diagnosis of closure of the new opening is pretty clear, what can be done to relieve the patient? Although in the case under consideration the adhesions, owing to the breaking-down of the abdominal wound, were very extensive and would have made any further operation exceedingly difficult, I suppose the proper course in a case not so complicated would be to repeat the operation a little lower down the jejunum. I think if the bowel were slack enough this would be more feasible than trying to re-establish the old opening through an incision in the gut. One word as to the fixing of the threads to the bone-plates. Catgut has been recommended because silk has been known (in animals) to form the nucleus of an enterolith, and certainly when attached in the manner recommended by Senn, such would seem a likely occurrence; for after the solution of the plate two silk rings would remain, one in the stomach and the other in the jejunum, connected together by four short threads, two of them perforating the walls of the gut. In such a case the silk rings would form snares for the intestinal contents, but if the four sutures were merely stitched to the softened bone-plates by means of the needle, there would be but very little of the sutures, and of only two out of the four, projecting from mucous membrane after the bone had become dissolved. This was actually demonstrated in this case. Only one of the sutures could be seen; it was held in position by the knot buried between the adherent layers of peritoneum, short ends of less than half an inch in length lying loose in the viscera. Had it not been for this suture there would have been no indication as to the exact site of the opening; it had closed up both on the ventral and jejunal side without the slightest scar.—*The Australasian Medical Gazette*, July, 1892, p. 273.

MUMPS—*Incubation of.*—In October, 1887, there was an epidemic of mumps in St. John's Foundation Schools. The first case occurred on October 4th; one occurred on October 18th, or 14 days after; one on October 19th, or 15 days after; five on October 20th, or 16 days after; four on October 21st, or 17 days after; seven on October 22nd, or 18 days after; four on October 23d, or 19 days after; one on October 24th, or 20 days after; two on October 25th, or 21 days after; showing that the larger number of failures are about the 17th and 18th day, while the disease may be developed as early as the 14th day and as late as the 21st.—Mr. Arthur Stedman, Leatherhead, *British Medical Journal*, July 2, 1892, p. 18.

PANCREATIC CYSTS.—Krecke (*Münch. med. Woch.*, Nos. 25 and 26, 1892) gives a summary based on published cases. Traumatism is the only cause established with certainty, but its mode of action is not very clear. A certain significance must apparently be attributed to gastro-intestinal catarrh spreading to the duct and causing obstruction. The exact position of the tumour depends on the part of the pancreas involved. It is a retro-peritoneal fluctuating tumour, coming forward generally between the stomach and transverse colon, and surrounded in a characteristic fashion by tympanitic resonance. Sometimes it may present above the stomach or below the colon; in the first instance the dulness would be continuous with that of the liver. Its contents are alkaline, dark brown in colour, and possessing the digestive properties of pancreatic fluid. Exploratory puncture is rarely necessary, and is not without risk. The symptoms are chiefly due to the pressure of the tumour, and also in less degree to the absence of the pancreatic juice. The attacks of colic are perhaps due to pressure on the cœliac plexus. Jaundice may be caused by pressure

on the common bile duct. Wasting is very common. The duration of pancreatic cysts has been known to be very prolonged. Their size depends on their age. Very large cysts may give rise to much difficulty in diagnosis. These cysts must be distinguished from ovarian and also renal tumours, from hydrops of the gall-bladder with attacks of colic, as well as from aneurism and deep-seated suppuration. The results of treatment by incision and drainage have been very good. A fistula occasionally remains, but this may subsequently heal up. Out of twenty-seven cases thus treated, all recovered ; three died some time later of diabetes, phthisis, and intestinal obstruction respectively. Extirpation of the cyst would appear to be accompanied by very considerable risk, for out of six such cases three died.—*Epitome of the British Medical Journal*, July 23, 1892.

PERITONITIS, IDIOPATHIC.—"It is not easy to define sharply just what shall be called idiopathic peritonitis. If the term be limited to cases of acute peritonitis, in which there exists in the peritoneum or other organs or parts of the body no disease which might be assumed to stand in a direct or indirect causative relation to the peritonitis, then acute idiopathic peritonitis is certainly a very rare affection. For the establishment of this variety of peritonitis, clinical observation alone is not sufficient ; and even when it seems to be established by a careful post-mortem examination, there is always a possibility that some small primary lesion has been overlooked. This makes it difficult to utilise for statistical purposes the cases of so-called spontaneous or idiopathic peritonitis recorded in literature. Nevertheless, it must be admitted that cases of acute peritonitis occur, in which the most careful examination during life and after death fail to reveal any disease outside of the peritoneum which can be supposed to bear any relation to the peritonitis. I have the notes of an autopsy of this character on a young woman with acute purulent peritonitis. If the epithet idiopathic be applied to all cases of acute peritonitis in which the peritoneal inflammation is the sole manifestation of an infectious process, then it cannot be said that idiopathic peritonitis is extremely infrequent. Any pathological anatomist of experience must have met with cases of acute peritonitis developing in connection with cirrhosis of the liver, or with chronic Bright's disease, without any infectious lesion in the body save the peritonitis. Here we may fairly assume that the presence of acites, or chronic thickening of the peritoneal membrane, or perhaps of waxy degeneration, acts as a predisposing cause, permitting the growth of pyogenic bacteria which would not have multiplied in a healthy peritoneal sac. If we expand still further the limits, as some writers have done, and designate as idiopathic cases of peritonitis occurring with acute articular rheumatism, with distinct local infections, as for instance tonsillar abscess (I have seen such a case of acute peritonitis), then, of course, the category of cases is still further increased. I should prefer to limit the term idiopathic peritonitis to the first class of cases. It may be said that there is no *à priori* reason why an acute spontaneous peritonitis of an infectious origin may not occur as well as an acute spontaneous osteomyelitis, for example ; but, as a matter of fact, the healthy peritoneum, instead of being as was once believed, one of the least resistant, is one of the most resistant parts of the body against the lodgment and the multiplication of pyogenic bacteria, as has been abundantly demonstrated by experimental work." —Professor Welch, quoted by Dr. Wiggin, *New York Medical Record*, July 23, 1892, p. 87.

PERITONITIS, SUPPURATIVE.—W. Körte (*Berl. klin. Woch.*, No. 31, *1892*) gives the results of nineteen consecutive cases of suppurative peri-

tonitis which he has treated during the past two years. He divides his cases into three classes : (1) General septic peritonitis with little exudation and with paralysis of the intestinal walls. These cases are not capable of improvement by direct surgical interference. (2) Suppurative peritonitis without adhesions. (3) Suppurative peritonitis with adhesions. Cases of tuberculous peritonitis or of peritonitis following internal strangulation or gangrenous herniæ are not reckoned in the series of cases. In the second and third classes of cases, especially in the latter, much may be done by surgery. Removal of the purulent fluid is advised as the best method of treatment, but washing-out of the peritoneal cavity with antiseptic solutions is said to be futile, and is not recommended. By these means abdominal pressure and tension are reduced, and hence interference with the lungs and heart prevented. If the peritonitis is due to perforation of the bowel, and this can be easily seen, closure of the aperture by sutures is advised ; but a prolonged search for the aperture in the gut is deprecated. After incision and evacuation of the pus, drainage-tubes are inserted. Of the nineteen patients operated upon, six recovered. The ages varied between two and seventy-one years. Twelve of the cases were general peritonitis with fibrinous exudation which formed adhesions. Out of these twelve, six recovered ; hence the value of adhesions in these cases is seen to be very considerable. Of the patients who recovered, four were between eighteen and thirty-one, whilst the fifth was forty-nine, and the sixth fifty-six. As regards the time of the operation, sixteen were operated on before the end of the fourth day from the commencement of the symptoms ; the remaining three were operated upon at a later period. Of those operated upon before the fourth day, six recovered, whilst all those operated upon after this died. In two cases the peritonitis came on after reduction of herniæ, in two after perforation in typhoid, in two after rupture of the bowel, and one after perforation from an ulcer of the stomach, and in three after injury to the abdomen. The operation was always carried out by the median incision in the linea alba, and when the purulent collection was reached it was mopped out with tampons of wool. Recovery was delayed in many cases, and further incisions were required. In some cases, intestinal fistulæ formed, which either healed spontaneously, or were submitted to further operation. For these cases the continuous water bath is advised. Körte kept some of this for five days with considerable advantage.—Epitome of the *British Medical Journal*, October 15, 1892, p. 61.

PERITYPHLITIS—*Surgical Treatment of.*—Schede (*Deut. med. Woch.*, June 8, 1892) records eighteen cases. The inflammatory processes in perityphlitis nearly always take place within the peritoneal cavity, and the appendix is almost exclusively the starting-point. A blocking of the appendix takes place most frequently by a concretion, and much more rarely by a foreign body. It may even be due to a contracting cicatrix, or perhaps to a catarrhal swelling. The integrity of the appendix is preserved in the slighter forms, the mucous, or muco-purulent, secretion escaping into the cæcum. Relapses are, however, frequent, and sooner or later severe forms are noted. Three cases of relapsing typhlitis are then recorded, successfully treated by excision of the appendix. In severe cases, with much inflammatory exudation, perforation is said to be seldom absent, yet they mostly run a favourable course, as adhesions have been formed. An abscess with muco-purulent or fæco-purulent contents may arise. In general, one may wait until the abscess comes near the abdominal wall, unless severe symptoms are present. Three successful cases are recorded in which the operation was undertaken in the interval after severe attacks. In each case centres of thick and more or less inspissated

pus were found. The appendix was removed. The author then comes to the well-recognised group of very serious and dangerous cases with rapid perforation before adhesions have been formed. Three such cases were operated upon, and two died. The third one was probably saved by the perforated appendix being in the sac of an inguinal hernia. In the remaining cases unusual complications were present. One simulated intestinal obstruction. A median incision was made, but the patient died. Incision over the cæcum, which, owing to diagnostic difficulties, was not adopted, might have let out the pus without infecting the peritoneal cavity. In the other cases adhesions about the cæcum caused some obstruction to the passage of the intestinal contents along with other symptoms. The worst case died. In another case the cæcum was excised with good results after a second operation. At times there may be, as in cases 15, 16, and 17, such thickening as to suggest malignant disease, especially if it occur in elderly people. Here, too, the cæcum had to be excised in one case. It was successful. The last case was one of carcinoma of the cæcum, believed to be secondary to typhilitic changes. The extensive disease was excised, but the patient died.—Epitome of the *British Medical Journal*, July 9, 1892, p. 6.

TONGUE—*Cancer of the.*—The following conclusions are appended to an exhaustive discussion of the surgery of the tongue, by Dr. N. P. Dandridge, of Cincinnati:—(1) Sufficient experience has been accumulated to show that the removal of cancer of the tongue prolongs life and adds to the comfort of the patient and further affords a reasonable hope of a permanent cure. (2) All operations should be preceded by an effort to secure thorough disinfection of the mouth and teeth. (3) In the treatment of continued ulcers and sores on the tongue caustics are to be avoided and all sources of irritation removed. (4) Persistent sores on the tongue should be freely removed by knife or scissors if they resist treatment. (5) When the disease is confined to the tongue, Whitehead's operation should be employed for its removal. (6) In this operation the advantage of preliminary ligature of the lingual artery is not definitely settled, but the weight of authority is against its necessity. (7) The advantage of leaving one half the tongue in unilateral disease must be considered undetermined, but the weight of positive experience is in its favour. In splitting the tongue into lateral halves, Baker's method of tearing through the raphé should always be employed. (8) A preliminary tracheotomy adds an unnecessary element of danger in the removal of the tongue in ordinary cases. (9) When the floor of the mouth has become involved or the glands are enlarged Kocher's operation should be performed, omitting the spray and preliminary tracheotomy. (10) Removal of the glands by a separate incision after the removal of the tongue must be considered insufficient. (11) Volkmann's method still rests on individual experience. Its just value cannot be determined until it has been subjected to a trial by a number of surgeons. (12) Thorough and complete removal should be the aim of all operation, whether for limited or extensive diseases. (13) By whatever method the tongue is removed the patient should be up and out of bed at the earliest possible moment, and should be generously fed.—*Annals of Surgery*, August, 1892, p. 119.

[See also article by Dr. N. P. Dandridge "On Volkmann's Operation for Cancer of the Tongue," at p. 146 of this volume of the *Retrospect.*]

TONGUE, EXCISION OF THE—*Modification of Operation for.*—The suggestion which I am going to make is possibly one that is already familiar to some surgeons; but as I have never seen it used or heard of its use, I

think it is of sufficient importance to bring it before the profession. Though it is but a trifling modification of the usual methods adopted, I have found it of the very greatest service, not only in diminishing the pain and discomfort which are usually experienced by the patient after these severe operations on the tongue, but also in lessening the danger of pneumonic trouble by the small amount and inoffensive character of the discharge, and in hastening very considerably the process of recovery. The mucous which collects in the mouth and pharynx can also be removed without the patient experiencing any considerable pain, since the sponge is not applied to any raw and sensitive surface. In some cases also the patient retains a fair proportion of the sense of taste. In the case of removal of a half of the tongue the suggested modification consists in the very accurate suturing of the cut margin of the mucous membrane on the dorsum of the tongue to the edge of that covering the floor of the mouth in such a manner that no raw surface is left uncovered by mucous membrane. In some cases it is necessary to alter the form of the portion of the tongue left, so as to make it fit the gap left with perfect accuracy. This is, however, easily met by a little ingenuity, and assistance may often be obtained by loosening the mucous membrane from the floor of the mouth and gum. When it is necessary to remove the body of the tongue, after carefully defining the extreme limits of the growth and giving it a wide margin, a large flap of mucous membrane with a substratum of muscular tissue is sliced off from that portion of the tongue which is of a certainty free from growth, and this flap is accurately sutured with fine silk sutures to the free margin of the mucous membrane in the floor of the mouth, and to that covering the root of the tongue, in such a manner as to cover the whole of the raw surface of cut muscle which is left exposed by the removal of the tongue. This procedure would, of course, not be adopted if there was any chronic inflammation of the mucous membrane, which might form the starting-point of malignant disease; but even in these cases the mucous membrane covering the under-surface of the tongue is probably unaffected, and it is surprising how large an area of raw surface a small portion of mucous membrane can be made to cover. The very vascular flap of muscle and mucous membrane unites with remarkable rapidity to the subjacent raw surface, and in this manner within a few hours of the operation the floor of the mouth is covered by a smooth layer of mucous membrane, instead of by a large inflamed or granulating area discharging abundantly a secretion which rapidly decomposes, and which may be, and often is, readily sucked into the larynx and air-passages, where it produces trouble with which we are only too familiar. I have used this method on several occasions, and in every case I have felt myself very well repaid for the time and trouble spent in perfecting the operation, and if used with discretion I can see no circumstances under which it could be other than of the greatest benefit to the patient. The increased duration of the operation is of very slight moment as compared to the advantages obtained by it, and in order to ensure the accurate approximation of the divided edges I do not hesitate to split the cheek or perform tracheotomy, although either of these measures might be unnecessary if one were satisfied with the ordinary mode of excision. The benefit gained counterbalances the slight extra risk.—Mr. Arbuthnot Lane, *The Lancet*, June 11, 1892, p. 1291.

Tuberculous Ulceration of the Stomach.—Dr. J. H. Musser, records an example of the very rare lesions, and appends the following conclusions to a critical review of the subject:—(1) Tuberculous ulceration of the stomach is rare. (2) It occurs more frequently in children. (3) It

is never primary. (4) Gastric infection is probably due to the voluntary or involuntary swallowing of sputum. (5) The presence of the bacillus tuberculosis is the only positive proof of the nature of the ulceration. (6) The anatomical peculiarities of this form of ulceration include the following: *a.* The seat of the ulcer is in the lesser curvature, although it may be found in any position. *b.* More than one ulcer is usually seen. *c.* The ulcers are large and irregular. *d.* Miliary tubercles on the floor of the ulcer in the submucous coat are seen. *e.* The ulcers are near vessels and the results of vascular ulceration are found. *f.* Small caseating masses are seen in the ulcer or at a portion of the periphery. Similar collections are found in the territory adjacent to the ulcer in the submucous coat. *g.* The peritoneum is studded with miliary tubercle very often. *h.* Neighbouring lymphatics are often involved. (7) In the large majority of cases there were no symptoms during life. (8) Sudden hemorrhage is a frequent symptom and cause of death; it has been particularly noted in children. (9) Epigastric pain and vomiting may occur. (10) The presence of gastric symptoms of this kind, occurring in the course of tuberculosis, is significant of possible ulceration. (11) In view of the fact that the swallowing of sputum is possibly dangerous, expectoration should be insisted upon in adults and its method taught to children.—*Medical Press and Circular*, Oct. 19, 1892, p. 394.

AFFECTIONS OF URINARY AND GENERATIVE SYSTEMS.

BRIGHT'S DISEASE—*Auditory Disturbances in.*—Professor Dieulafoy was the first to call attention to the frequency of auditory troubles in the course of chronic interstitial nephritis. That clinician indeed regards them as more frequent than troubles affecting the organ of vision. The ear complications take the form of generally incomplete deafness, accompanied or unaccompanied by noises, and sometimes associated with sharp pains in the ear or in the face. Dr. Bonnier has recently conducted some inquiries on this subject, and he finds that "auricular Brightism," as he denominates this condition, may manifest its presence, not only by the above symptoms, which are referable to cochlear changes, but by others dependent upon morbid modifications of the labyrinth. These latter remind one pretty accurately of the condition first described by Ménière, consisting as they do of vertigo, nausea, vomiting, syncope, and apoplectiform pnenomena, gyratory movements, unsteadiness of gate, and irresistible falls in a given direction. This form of Ménière's disease is, according to Dr. Bonnier, paroxysmal in character, and it is generally due to vaso-motor troubles, such as congestions, hemorrhage, or œdema of the internal ear determined by uræmia. It may be an early indication of kidney disease or appear late in its course. Quinine, which is so successful in the ordinary form of Ménière's disease, is useless here, the only efficient means of combating it being recourse to an exclusive milk diet. Under the influence of this simple means of treatment it speedily gives way. This observation of Dr. Bonnier once more emphasizes the importance of examining the urine in the presence of any symptoms of which the origin appears obscure.—Paris Correspondent of *The Lancet*, Aug. 27, 1892, p. 511.

CYSTITIS—*Local Use of Corrosive Sublimate in.*—Guyon (*Annales des Mal. des Org. Génito-urinaires*, 10e année, No. 1) arrives at the following conclusions, based upon his observations and the results obtained by the topical application of corrosive sublimate in the following twenty-six cases of cystitis: Of ten cases of tubercular cystitis, five were greatly amelior-

ated; two of these he would call cured if it were not for the difficulty of exact diagnosis and the well-known tendency to relapse in all conditions of tubercular origin; and he lays special stress upon the fact that in these cases the corrosive sublimate was well borne, the reverse being true of all other medicaments whose topical application he had studied. Of seven cases of gonorrhœal cystitis, four were cured, one ameliorated, and two were unsuccessful. Two cases due to prostatic enlargement were speedily ameliorated, and one case of pseudo-membranous cystitis was cured. He found that an inverse ratio exists between the number of micturitions and the capacity of the bladder, and that it has a physiological, not an anatomical capacity. This led him to use instillations instead of lavages, drops instead of drachms, and he obtained by these methods, using solutions of equal strength, entirely different results. He draws the following conclusions from the work of Hallé regarding the antiseptic power of corrosive sublimate: It is powerful against microbes of the air; weaker against the microbes of the urine than against the ordinary pyogenic microbes; and very weak in its antiseptic power over purulent urine, only acting when used in enormous doses. He found the nitrate of silver less powerful over the microbes of the air; but greater over the microbes of the urine than on the ordinary pyogenic microbes, though in neither case was it as efficient as the sublimate, while the same is true of its power over the microbes of purulent urine when used in proportionate doses. With regard to the efficiency of the sublimate in destroying the bacillus of tuberculosis, he believes that the great amelioration, amounting almost to absolute cure, in the cases of tubercular cystitis, confirms the belief that it is the most active agent we possess, and the culture experiment of Hallé demonstrated the fact that the presence of sublimate in a gelatin culture, even in the form of albuminate, prevents the growth, although it does not destroy the turbercle bacillus. With regard to the effect of these germicides upon purulent urine the experimentation shows that it is impossible to apply either remedy with hope of success, where there is purulent urine. He gives the following as his method of treatment. He believes that instillations should be substituted for lavages, as the sensibility of the bladder both in its normal and pathological conditions is dependent upon the distension of its mucous membrane, and he finds that by this method he can more easily increase the strength of this solution while lengthening the time of its retention. The instillations are made in the ordinary manner; the fluid should be introduced into the posterior part of the urethra, as this part always participates in any cystic inflammation. The solutions should be made of boiled distilled water and must be made without alcohol. The bladder must be void of urine, a catheter being used if required. The first instillation should not exceed 20—30 drops of a 1 : 5000 solution, and may be increased in quantity to one drachm, and in strength to 1 : 1000. This he considers the limit of safety, although the dosage both as to quantity and strength is entirely relative, and depends on the sensibility of the bladder, excessive pain demanding weaker solutions, while inability to retain the solution is the indication for a lessened quantity. In all his observations he has seen no harmful results from this method of treatment.—*The American Journal of the Medical Sciences*, July, 1892, p. 94.

Diet in the Slighter Forms of Diabetes.—Professor Voit, at Munich, demands for the healthy well-situated man 127 grms. of albumen, 89 grms. of fat, and 362 grms. of carbo-hydrates. If we employ "aleuronat" the diabetic patient is not obliged to take animal albumen alone. Assuming that the diabetic patient consumes daily 250 grms. of aleuronat bread, which contains fifty per cent. of vegetable albumen, of which he incor-

porates 80 grms. in this manner, this kind of albumen has the same value as the animal albumen, and is, as I mentioned before, preferable on account of its cheapness. One kilogramme of albumen in aleuronat costs to-day about 1*s.* 6*d.*, whereas in Germany one kilogramme of albumen, contained in beef, costs about 7*s.*, and in eggs still a little more. If now the patient consumes, besides this vegetable albumen, 300 grms. of lean beef, which contains 18 per cent. of animal albumen, he has received 134 grms. of albumen. Of course, he can cover his need of animal albumen altogether or partially by any kind of meat, fish, or by eggs. In a portion of 250 grms. of aleuronat bread the patient consumes no more than about 70 grms. of carbohydrates. Since most physicians will allow to-day 100 grms. of carbohydrates to their diabetic patients, 30 grms. of carbohydrates can be taken in other forms, as, for instance, in the vegetables mentioned before, or in aleuronat employed for the preparation of sauces, soups, etc. Of those carbohydrates, which are easily assimilated even by diabetic patients, a larger quantity may be permitted. Patients who cannot do without sugar owe in this respect great thanks to the chemical factory of E. Schering, at Berlin, which, at a comparatively very low price, prepares levulose, which is chemically pure, especially free from dextrose, and which may in the course of time supplant the often disagreeable saccharine. The 260 grms. of carbohydrates, which remain to be consumed, according to Professor Voit's calculation, must in the cases of diabetics be replaced by fat. Professor Voit demands for a healthy individual about 90 grms. of fat. If the diabetic patient takes daily about 200 grms. of fat he will generally satisfy his need of carbon. If the patient can take still a larger amount of fat he will be able to limit still more the quantity of carbohydrates. This is not impossible. Habit will do much. It is, of course, understood that only the best kind of fat should be employed. Aleuronat bread as well as vegetables can bear much fat. Moreover, an occasional gelatinous food will not only limit the consumption of albumen, but will also reduce the need of fat.—Dr. Ebstein, *Medical Chronicle*, September, 1892, p. 365.

[See also Article by Dr. Wilhelm Ebstein "On a Vegetable Aleuronat for Diabetes," at p. 22 of this volume of the *Retrospect.*]

EPISPADIAS—*Operative Treatment of.*—Rosenburger (Winzburg) has devised a very ingenious and apparently satisfactory method of relieving this serious deformity. In the patient (a boy two and a half years old), on whom he first proved its efficiency, the urethral defect extended from pubes to meatus. The first step was to make two longitudinal incisions, parallel with the urethra and at its lateral border, which extended from the glans to the pubes and were then continued up on to the abdomen an equal distance. A linear strip of skin was next dissected off along this entire distance, leaving a defect, or denuded surface, one-half a centimetre wide, and equal in length to twice the length of the penis. The penis was then turned up on to the abdomen so that the dorsum was in contact with the abdominal surface and sutured in this position by uniting the penile denuded surfaces which were held in contact with the abdominal one. It was allowed to heal in this position. It was then possible for the patient to control the urine and to micturate at will. The second stage of the operation was to free the penis. This was done by dissecting it from the abnormal wall and restoring it to its normal position. When this was done, a flap was cut from the abdominal wall extending from the meatus upwards towards the umbilicus. This remained attached to the penis when it was freed from the abdomen, and by being folded back was used to cover the denuded surface left on the dorsum of the

organ after its release from the abdominal wall. The abdominal defect was closed by suture. Union was obtained and the patient is reported as being able to retain urine for an hour at a time and to micturate without difficulty. The effect of the development of hair in the urethra is not yet known, but Rosenburger does not anticipate any trouble from it.—*Boston Medical and Surgical Journal*, July 21, 1892, p. 65.

HYDRONEPHROSIS—*Intermittent.*—Terrier and Baudouin, in a study of this subject (*Revue de Chirurgie*, 1891, No. 12), arrive at the following conclusions: The intermittent variety of hydronephrosis has been little known until recent years, and appears to be more frequent than is generally thought. This clinical variety has its origin in several different lesions. In the great majority of cases it constitutes a complication of displacement of the kidney. It is more frequently observed in females than in males, and is more common on the right side in women, while the left kidney seems oftener affected in men. Occasionally the origin of the trouble is a calculus in the pelvis of the kidney, at other times a compression or temporary obliteration of the lower extremity of the ureter, while, in other cases, it is of congenital origin. It is also produced in the movable kidney by bending of the ureter, with or without torsion, at the time of the displacement. There is momentary arrest of the secreted fluid, with the formation of a hydronephrotic pocket, which empties itself as soon as the kidney resumes its normal position. Other causes are peripyelitic irritation, due to circulatory disturbance or to infection of the mucous membrane of the pelvis, and fibrous adhesions, whereby the sac is united to the upper part of the ureter, transforming an intermittent into a permanent hydronephrosis. The alternations of filling up and evacuation of the pelvis of the kidney, due to the temporary obliteration of the ureter, can be explained clinically by the characteristic painful attacks, coming on in the course of a more or less altered state of the health, occurring at intervals of about a month, or sometimes oftener. These attacks, which present three stages—the beginning, the acme, and the terminal phase—are characterised by intense pains, sometimes intolerable, coincident with the appearance of a fluid tumour, rarely fluctuating, situated in most cases in the right flank, with a notable diminution in the quantity of urine voided. These are the consequences of an abrupt flexion of the ureter, following the displacement of the kidney. Each crisis lasts several hours, and suddenly ceases when the kidney resumes again its normal positions. The tumour disappears with the pains, and there is a considerable discharge of urine—the pelvis has emptied itself. Hydronephrosis, beginning in this way, may remain intermittent for a long time, may remain stationary, or may become aggravated during pregnancy. After a time, the collection becomes infected, the urine is purulent, and the dangers incident to this condition present themselves. For the painful crises medical measures may be tried. If there is renal mobility nephrorrhaphy is advised. When there is permanent hydronephrosis which tends to progress, more radical measures are demanded. Tapping is to be rejected. If the lesions are double, it is recommended to make on the side most affected a fistula of the pelvis, but if the other kidney is healthy, it would be better to do at once a nephrectomy, as, if the surgeon is content with draining the cavity, a secondary nephrectomy will probably be necessary.—*The American Journal of the Medical Sciences*, May, 1892, p. 594.

KIDNEY, GRANULAR—*Its Etiology.*—Some time ago Eisenlohr reported a case of acute infective nephritis complicating enteric fever, and ultimately developing into the granular kidney. He now records (Deut.

wed. Woch., August 11, 1892) a similar result in a case of acute nephritis complicating acute pneumonia in a woman, aged thirty-nine. Much albumen, red blood-cells, leucocytes, and casts were found in the urine on the eighth day of the disease. A few days later there was œdema. There was no cardiac hypertrophy, and the arterial tension was abnormally low. A month later she had uræmic attacks, with headache, vomiting, and diarrhœa. A few months later the urine was found to be considerably increased in quantity, of low specific gravity, and contained very little albumen. The arterial tension was very slightly increased. Nine months after the attack of acute pneumonia she died of uræmia. At the necropsy the kidneys presented the appearance of the ordinary red granular disease, both naked eye and microscopically, and the heart was only very slightly hypertrophied. The previous existence of a chronic nephritis must, of course, be excluded. Nine years previously the patient was in hospital, and the urine was noted to be quite normal. The development of the granular kidney in the meantime is in the highest degree improbable, chiefly because there was hardly any cardiac hypertrophy. The slight degree of hypertrophy found corresponded to the short duration of the disease. The author has been unable to find any record of a similar case after acute pnuemonia. It is well known that acute nephritis not infrequently occurs in the various infective diseases, that it may not give rise to characteristic symptoms, and that it may thus be easily overlooked. In the above recorded case, and also in the one previously reported by the author, there was apparently a progressive shrinking of the kidney without previous enlargement. These cases are not advanced as evidence of any general operation of such a cause in the production of the granular kidney.—Epitome of the *British Medical Journal*, October 8, 1892, p. 57.

KIDNEY, MOVABLE—*Its Forms.*—It is not difficult to understand why some kidneys are very mobile and yet are not detected to be so at the bedside examinations. There are two distinct forms of movable kidney. First, those the mobility of which might be described as "cinder sifting" movement, that is, a shifting in any direction, up and down, inwards and outwards, behind the peritoneum and upon the posterior surface of the kidney. This occurs when the perinephric tissue is very lax, and the peritoneum is not dragged forwards into a long loose sac. Secondly, those kidneys which spring forwards or rise away from the wall of the loin towards the anterior abdominal wall. This movement can only occur when the peritoneum is loose and sac-like, or when, as very rarely happens, there is a distinct mesonephron. The kidney in this second form of movement is often easily detected, as a movable or "floating" lump or tumour, the moment the hand is placed on the front surface of the abdomen; but the cinder sifting movement may be very free and yet when the patient is lying quietly on his back the most careful examination may fail to detect movement, especially in persons with a long thorax, a thick trunk, or fat abdominal walls. The idea that a movable kidney could give rise to distressing symptoms has been met by the argument that there was no such thing clinically as a movable kidney, and that several kinds of morbid swellings have been mistaken for movable kidney. While it is true that other tumours are occasionally and wrongly regarded as movable kidneys, what is very much more common is that movable kidneys are present and their mobility overlooked.—Mr. Henry Morris, *British Medical Journal*, May 14, 1892, p. 1008.

NEPHRORRHAPHY AND ITS AFTER-EFFECTS.—This operation has been performed fourteen times by Dr. Tuffier (*L'Union Médicale: Medical*

Record, August 29, 1891) for movable kidney. There are three orders of symptoms produced by this disease:—(1) pain, (2) gastric disturbance, (3) neurasthenia. There are, therefore, three clinical types of movable kidney. The painful form, with or without hydronephrosis, is the most frequent and is the most favourable for treatment, since in ten cases pain disappeared entirely after the operation, and in three other cases pain was much relieved. The dyspeptic form is less common (two cases), and is accompanied by enteroptosis or hepatic lesions. The neurasthenic form is also rare; it includes the entire gamut of nervous symptoms, as well as hysteria. There are two absolutely distinct etiological varieties, from a therapeutic point of view; the simple movable kidney or traumatic displacement, which is a true dislocation; a forcible hernia, the rest of the abdominal belt being unaffected. Operation in such cases is the triumph of nephrorrhaphy. The movable kidney with complications is a slow and progressive displacement, preceded, accompanied, or followed by Glennard's enteroptosis. In such cases the nephroptosis is only incidental; there is a weakening of the abdominal walls, which should be supported by a belt and invigorated by massage. Out of ten patients operated on, after an interval of more than four months, one only was attacked by congestive outbreaks. The nine others, all recently examined, have firm cicatrices without any tendency to hernia; the kidney is fixed, and forms part of the abdominal wall, but may be readily distinguished over the greater part of its extent. Pain has been relieved in every case with one exception, and in that case there is enteroptosis. Such results are encouraging. M. Tuffier believes that nephrorrhaphy should maintain its position as a legitimate operation in renal surgery. It is a mild operation, as in 149 cases the mortality is only 3.4 per cent. It is efficacious, since out of 73 typical operations, in eight per cent. the patients were either cured or much relieved. The success would be yet greater if a careful selection of cases were to be made.—*Boston Medical and Surgical Journal*, July 21, 1892, p. 65.

PARAFFIN CANCER OF THE SCROTUM.—In the year 1875 Professor Volkmann, of Halle, in his well-known *Beiträge zur Chirurgie*, S. 370, published a paper, "On Tar, Paraffin, and Soot Cancer (Chimney-Sweeps' Cancer)." He said: "Three cases of skin cancer of the scrotum, which I have had the opportunity of observing during the year, are of particular interest, because they developed in workmen who were employed in brown-coal-tar and paraffin manufactories, and because, even in the smallest details, both of their clinical course and anatomical structure, they agreed absolutely with the so-called chimney-sweeps' cancer of the English."

In the following year (1876) the *Edinburgh Medical Journal* (page 135) contained a paper by Dr. Joseph Bell, F.R.S.E., on "Paraffin Epithelioma of the Scrotum." In this he said: "But, if chimney-sweeps' cancer is rare and becoming rarer every year, I believe we are to find a successor for it in a malady affecting the labourers exposed to the fumes of paraffin in shale works. Of this disease, epithelioma of the scrotum—ascribed by patients to paraffin fumes and contact with the oil—I have seen two cases within the last eighteen months, which I now briefly report." Dr. Bell does not seem to have been aware of Professor Volkmann's paper, for he concludes his own account by saying that he has not seen any notice yet of the form of scrotal epithelioma just described; so that it is probable that the two papers describing the same disease and attributing it to a similar cause—a cause which had not previously been known to be in any way associated with the occurrence of cancer—were

the result of independent observation in two different and distant countries. In addition to the mere description of the cancerous affection in the three cases, he has given a very admirable account of the conditions which preceded the development of the cancer. This account is the more valuable because it agrees very closely with that given in 1871 by Professor Ogston, "On the Local Effects of Crude Paraffin." Bell quotes Ogston's account, and confirms it, but does not add to it, with the important exception of two cases of epithelioma of the scrotum.—Mr. Butler's Lectures on "Cancer of the Scrotum in Chimney Sweeps and Others," *British Medical Journal*, July 9, 1892, p. 68.

SCARLATINAL NEPHRITIS—*Its Prevention.*—Zeigler (*Berliner klin. Woch.*, Jan. 11, 1892), who has had a very large experience with scarlet fever, believes that the best prophylaxis of nephritis is a milk diet and rest in bed. During the early stages of the disease the milk is diluted, usually with Seltzer water. If the case is uncomplicated, but little else is given. When the acute stage is passed and the appetite begins to return, zwieback or rolls are added to the diet. No further diet is given for a period of three weeks. The amount of milk is limited only by the patient's appetite. Among 115 cases treated before the exclusive milk diet was used, over 50 per cent. suffered from renal complications. In over a hundred cases treated by the milk diet no nephritis was observed. In private cases, in which the milk diet could not be enforced for so long a time, farinaceous food was permitted.—*New York Medical Journal*, July 23, 1892, p. 109.

TESTIS.—*Affections of no Hereditary Syphilis.*—[Dr. George Carpenter contributes a very interesting and important paper on this subject to *The Practitioner* for September, 1892, in which, in addition to an extensive survey of the literature of the subject, are embodied the narratives of eighteen cases of disease of the testis or its appendages, selected from the careful and systematic observation of the testicles of some 200 or more cases of hereditary syphilis. The present state of our knowledge of the subject is summed up by Dr. Carpenter as follows:] (1) The testicles may be affected so slightly in congenital syphilis that it needs the microscope to detect the malady. (2) In a certain small percentage of cases of congenital syphilis the lesions of the testicle are such that they can be detected by physical examination. These lesions may be present at birth, arise soon after, or make their appearance some months or years afterwards. The general rule, however, seems to be from birth up to two or three years, not often much after this time, and very rarely indeed at puberty. Fournier's case of twenty-four years seems to be the present extreme limit. Syphilitic orchitis may, as has been before remarked, arise when the patient is apparently thoroughly under the influence of mercury, but in this latter respect it does not differ from other syphilitic manifestations. (3) The globe is, more often than not, alone affected, but, not infrequently the globe and epididymis suffer together, and quite exceptionally the epididymis is attacked singly. It appears from Bumstead and Taylor, that the cord may suffer, and in one of Obédénaro's cases it was as thick as a child's thumb. The vas, vesiculæ seminales, and prostrate are not attacked: at least so far there has been no record of such a complication. (4) The disease is very frequently, but not invariably, bilateral in its distribution, though one side may be more advanced in pathological changes than the other. (5) Hydrocele of the tunica vaginalis is not such an infrequent accompaniment of the malady as some writers would have us believe, and it may be, in young infants, the earliest indication that

there is something wrong with the testicles. In all probability, as time goes on, the fluid is re-absorbed, and then the condition of the gland itself becomes more marked. (6) There is just a possibility that hydrocele of the cord may, in some instances, owe its origin to congenital syphilis. (7) The swelling of the testicle is a painless one, it feels like scirrhus; it may, or may not, be nodular, the latter for the most part, and a fungus testis is sometimes seen. (8) The enlargement of the affected organ is usually not great, and in fact there may be none at all, it being a very rare occurrence indeed to find in infants and children a testicle the size of an egg. (9) In the large majority of instances the microscopical appearance is that of the simple inflammatory form, passing on to the development of fibrous tissue with consequent destruction of the gland, leading possibly, if not attacked in time by suitable remedies, to impotence and sterility. Certain atrophied organs may be accounted for in this manner. A scrotum, of natural or almost natural dimensions, containing an atrophied organ, the vas, seminal vesicles, and prostate being free, with marks of congenital syphilis on the person, in the shape of scars on the buttocks, fissures round the mouth, characteristic teeth and physiognomy, specific eye troubles, or what not, would suggest such a causation. The inflammatory form is akin to that observed in the liver. Gummata, on the other hand, are rare manifestations.—Dr. Carpenter, Evelina Hospital, *The Practitioner*, September, 1892, p. 205.

URIC ACID GRAVEL—*Mineral Springs in the Treatment of.*—The use of mineral springs in the treatment of uric acid gravel demands a word of comment. A sharp distinction must be drawn between alkaline springs and non-alkaline springs. Alkaline waters, such as those of Vichy, which are largely impregnated with carbonate of soda, have the power of alkalising the urine, and therefore absolutely protect against uric-acid gravel during the period of their use. But the non-alkaline waters have no such power, and their beneficial action is due to the fact that they greatly increase the flush of the urinary stream, and thereby promote the carrying down of concretions already lodged in the precincts of the kidneys. Their efficacy in this direction is quite undoubted, but it is, I think, equally undoubted that the drinking of equivalent quantities of distilled water would be just as efficacious. A glance at the composition of the several non-alkaline springs which have acquired renown in the treatment of gravel supports this view, and indicates that the neutral salts contained in them have little or nothing to do with their efficacy. Some of these waters are impregnated with sulphate or chloride of sodium, others with salts of magnesia; others, again, only contain minute quantities of sulphate of lime, and are scarcely distinguishable, except for their warm temperature, from ordinary drinking-water. Yet all these most diverse springs claim equal powers in cases of gravel. It is not plain that what alone gives them efficiency is that which they all contain in common, namely, their watery constituent? Subjects of urinary gravel who pay, as many of them do, an annual visit to one or other of these springs imagine that such a visit clears them from their calculous tendency for the rest of the year. This, I believe is a delusion. Such persons, on their return home, stand, in regard to their morbid proclivity, precisely where they stood before their visit. It is obvious that a preventive treatment of uric-acid gravel to be completely effective should be available all the year round, and be capable of timely application, whenever the emergency arises. An adequate choice of substances which alkalise the urine is always at our disposal; their power of preventing uric acid precipitation amounts to a chemical certainty, and in even moderately prudent hands no harm can follow from

their use. I see no reason, provided vigilant watch be kept on the imminence of uric acid precipitation in the fasting urine, in the manner before described, why sufferers from this kind of gravel should not, by a prompt resort to antacid remedies, be able at all times to protect themselves effectually against fresh formation of uric acid concretions, and thereby save themselves from a world of pain and danger.—Sir William Roberts's Croonian Lectures, *British Medical Journal*, June 25, 1892, p. 1352.

[See also article by Sir William Roberts "On the Therapeutics of Uric-Acid Gravel," at p. 74 of this volume of the *Retrospect.*] .

GENERAL SURGERY, AND AFFECTIONS OF THE BONES, JOINTS, ETC.

AMPUTATION AT THE HIP-JOINT—*Wyeth's Method.*—Wyeth's operation is as follows: Two stout pins, twelve inches long and one quarter of an inch in diameter at the head, are passed through the upper part of the thigh. The object of these pins is to hold in place a piece of elastic tubing which is wound tightly around the thigh just above them; the tubing will constrict all the blood-vessels in the entire thigh, and is prevented from slipping down by means of the pins. The exact place of the pins is not very important, but they must be passed through the tissues at points where they will not injure any large vessels or nerves. Elastic tubing, half an inch in diameter, is then wound five or six times around the thigh, and is secured by stout forceps, or better, by tying it. This tubing should not be ordinary white-rubber tubing, which is not very elastic, but should be of pure rubber. The control of the hemorrhage by this method as you will see, must be absolute. About five inches below Poupart's ligament a circular incision is made through the skin and the superficial fascia; this is then dissected back, as a cuff, until the level of the lesser trochanter is reached; the muscles are then divided circularly down to the bone, and the bone is sawed off. Dr. Wyeth has made the happy suggestion that, when the bone is bare, instead of dividing it at the same level as the muscles, the tissue be stripped down for several inches and the bone sawn much lower down; the protruding part of the bone then serves as a handle for manipulation. This is far superior to sawing the bone at the lesser trochanter and seizing the stump of the bone with the lion-jawed or other forceps. The next step is to secure the blood-vessels. The principal ones will be the superficial and deep femoral arteries and veins, in front, just under the deep fascia. Posterior to the bone, along with the sciatic nerve, run the sciatic vessels; externally, toward the gluteal region, the gluteal vessels, and lower down, the circumflex. Internally, at about the middle or a little posteriorly, lies the obturator. Besides these there is a large number of muscular branches which cannot be found until the elastic tubing is gradually loosened, after the important vessels have been secured. The vessels being all tied, even down to the smallest spouting branches in the muscular tissue, the elastic tubing which has been partially released, is now removed, and the pins drawn out. The upper portion of the femur is then dissected loose from the soft parts, hugging the bone as closely as possible, so as to avoid dividing any large vessels. The muscles are then cut loose from the trochanters, and the capsule of the hip-joint is exposed and opened. The ligamentum teres is now revered and the entire upper extremities of the bone removed.—Professor W. W. Keen, *Philadelphia Medical News*, *March 26*, 1892, p. 350.

AMPUTATION IN DIABETES.—At the Royal Medical and Chirurgical Society on June 14, 1892, Mr. G. W. Spencer brought forward evidence to show that the timely adoption of amputation above the knee or elbow for the removal of severe inflammatory complications would prolong life, and very much reduce the amount of sugar excreted before operation. He urged that failures had resulted from amputating through the foot or leg when the vessels had been already narrowed or thrombosed, and that it was useless to attempt the reduction of the sugar by drugs and diet when a severe inflammatory lesion was present. Cases were quoted to show that healing readily took place in diabetics, especially a malignant case of diabetes mellitus attacked with erysipelas and abscess, and which died in diabetic coma three weeks after healing. He then compared two cases, one of suppuration around the femur above the knee with no bone exposed, treated by palliative measures, ending in diabetic coma; the other of suppuration around the elbow with the lower third of the humerus bare, which recovered good general health after amputation through the arm. Urine before operation 1040, 10 grs. to 1 oz. sugar; after operation 1023, sugar a constant trace. Drugs and diet influenced neither case, except the latter after healing. Reference was made to other cases by Professors Roser, König, Kraske, Heidenhain. Professor Küster amputated the thigh in eleven cases of diabetic gangrene; six recoveries—two primary, four after limited ulceration. Sugar before operation (1) large, (2) 5 per cent., (3) 2 per cent., (4) 3.6 per cent. with $\frac{1}{3}$ albumen, (5) 1 per cent., (6) a trace. Five fatal—(1) in coma at operation, (2) double amputation at seven days' interval, (3) (4) (5) very albuminous urine. Stumps of fatal cases tended to heal without suppuration. Professor Küster's experience in senile and diabetic gangrene was quoted in support of the high amputation advocated by Mr. Hutchinson. Amputation four times of a toe, once through the foot by a Lisfranc, three times through the foot by a Chopart, six times through the leg. All became again gangrenous, and only recovered after secondary amputation through the thigh, except two legs in which the ulceration and necrosis were limited. Three cases of diabetic gangrene under Professors König and Mr. Langton recovered from amputation through the leg after ulceration and necrosis. Primary union had only been obtained after a high operation. Indications for operating in gangrene were mentioned, and cases illustrating the more favourable character of perforating ulcers, including one under Mr. Thomas Smith.—*British Medical Journal*, June 18, 1892, p. 1305.

ARTHRECTOMY FOR DISEASE OF THE KNEE-JOINT—*Method.*—The first thing is to expose the capsule very thoroughly, and this I do by means of two free longitudinal incisions, one on each side of the patella and a little distance from it, and I think it is best, in the first instance, not to open the joint. The tissues in front of the synovial membrane are then dissected off, and the whole of the membrane behind the quadriceps is thoroughly exposed. The dissection is then carried to each side over the condyles, remembering that a fold of synovial membrane extends backwards for a considerable distance over the sides of the condyles. The lateral ligaments are then divided, and the synovial membrane separated from them. The dissection is then continued inwards to the edge of the patella on each side and behind the ligamentum patellæ. The membrane is next detached all around where it is reflected on to the cartilages of the various bones and cut away as far back on each side as possible. The joint is thus freely exposed from the front and a fringe of synovial membrane is seen around the edges of the various cartilages. This is carefully removed, and then one may or may not connect the two longitudinal incisions by a transverse

one over the patella, sawing that bone transversely. Usually I have not required to do this, but, by dislocating the patella first to one side and then to the other, I have been able to get free access to the whole joint. The crucial ligaments are next thoroughly cleaned and divided, or, if much diseased, removed, and special attention is directed to the condition in the intercondyloid notch. The joint being then bent, the semilunar cartilages are removed, and the dissection of the synovial membrane resumed. It is quite easy as a rule to define the outer part of the synovial membrane on each side, and having done so, separation is gradually effected by the finger or some blunt instrument between the posterior part of the capsule and the vessels and structures behind, and this is continued till the points of reflection of the synovial membrane on to the femur above and the tibia below are well defined. The synovial membrane is then cut off at these points, and the fringe around the cartilages carefully removed. Having now got away all the synovial membrane, the ends of the bones are easily protruded through the wound and the cartilages carefully examined. If any depressions are seen on the surface they are cleaned out; if they are loose or much thinned anywhere that portion is removed along with a thin layer ¼ inch) of the bone beneath. Very often the cartilages are covered with a thin layer of soft tissue, and this must be got away either by scraping the surface with the edge of the knife or by scrubbing it with a nail-brush. If the cartilage is absent at any part and the surface of the bone carious, a thin layer of bone is cut away at that part, remembering that the tuberculous tissue only extends into the bone for about one eighth of an inch. This layer can usually be removed with the knife. Of course, if at any part the hole in the cartilage or the carious patch are found to lead to a deposit in the bone, that must be thoroughly cleared out. Having satisfied ourselves by fresh inspection that all the disease has been removed, the wounds are closed, the crucial ligaments, if left, being stitched and the patella, if divided, being wired. A drainage-tube is seldom necessary, or, if it is used, should be removed in two or three days. I think it is best in most cases not to use a tourniquet. Without it it is easier to distinguish disease, the pulsation of the popliteal artery can be felt, which is of importance in dissecting out the synovial membrane posteriorily, and the oozing from the wound is less. Subsequently no passive motion should be employed, and as there is very great tendency to flexion in children a back splint should be worn for a long time—sometimes for years.—Mr. Watson Cheyne, *British Medical Journal*, July 2, 1892, p. 14.

[See also article by Mr. Watson Cheyne "On the Relative Value of Arthrectomy and Excision in the Treatment of Tubercular Joint," at p. 135 of this volume of the *Retrospect.*]

GANGLION.—Dr. Evans appends the following conclusions to his paper on Ganglion, an excerpt from which appears at p. 117: (1) Ganglia possess a specific and distinctive fluid contents. (2) They are in no way related to the bursæ. (3) They ordinarily do not communicate either with the joint or tendon-sheath cavity. (4) Though their origin is still in doubt, the weight of authority and evidence is for their development from the synovial follicles of Gosselin or from the sub-synovial bodies of Henle. (5) Ganglia probably develop more frequently from the joint capsule than from the tendon-sheath. (6) For treatment, rupture and subcutaneous descission are to be recommended as palliative means, and the radical operation of formal excision as curative.—*The American Journal of the Medical Sciences*, June, 1892, p. 656.

GOITRE—*Enucleation of.*—Reverdin (*Revue de Chirurg.*, 12e année, No. 3), *writing* on this subject, says: "It must not be forgotten that despite

the amelioration in statistics, thyrodectomy is an operation that often leaves a cadaver in the hands of the operator;" and continuing, he formulates these as the indications for operation: "When iodoform and all other recognised effective medicinal treatments have done all they can for the symptoms which continue rapidly or slowly to increase, as suffocation and intermittent or persistent pain, surgical intervention is indicated." He reported fourteen cases in which the sexes were represented by five men and nine women. The ages varied from twenty-one to fifty-eight years, thirty-five years being the average. The position of the goitres was ten of the right lobe, and two each of the isthmus and the left lobe. He suggests as a hypothetical reason for the predilection shown for the right lobe, the greater liability of congestion on that side when there is any effort as a cause for it, present in the system. He classes the goitres from the clinical aspect as five parenchymatous, six cystic, and three adenoid. He considers enucleation preferable to partial extirpation, his experience in this series of cases having demonstrated the greater utility and better results without sequelæ of the former method, and although in this series he did seven enucleations and seven partial extirpations, he draws attention to the fact that six of the partial extirpations were done in the first seven cases, and that since his experience has taught him the difference, he prefers to perform the enucleation. Comparing the duration of time in the two operations, and the length of convalescence, he finds that the enucleations averaged twenty-six minutes, including dressings, and healed in seven days, while the partial extirpations required sixty-two minutes and only healed after fourteen days. All his patients recovered, except one; this one was a woman, aged seventy years, whose trachea was so involved and softened by disease that even tracheotomy could not save her, and this case he believes reflects no discredit either upon the operation, its method, or the surgeon. He considers the operation one of necessity rather than of choice, and believes that the surgeon should always attempt enucleation, as it has the advantage of being the shorter operation, and produces the more rapid cure without the danger of sequelæ.—*The American Journal of the Medical Sciences*, July, 1892, p. 97.

Hip Disease—*Treatment and its Results.*—[Professor Sayre communicates to the *New York Medical Journal* of April 30, 1892, an elaborate and beautifully illustrated paper upon the results in cases of hip-joint disease treated by the portable traction splint, without immobilisation, except during the inflammatory stage of the disease. Seven strikingly successful cures are given in illustration of the method employed, in which a perfect or almost perfect mobility of the joint seems to have been secured. The principle of the treatment adopted is indicated by the title of the paper quoted above, and is carried into effect by the application of long splints with extension, and also in some cases by the simultaneous use of lateral traction upon the upper part of the thigh by a weight hanging over the side of the bed; blisters were also used in some cases, the object of treatment at this stage being to subdue inflammatory action and pain by means of rest. When this has been accomplished Professor Sayre's traction splint, with perineal bands, is applied, and the patient allowed to walk. The following interesting statistics are appended to the paper:] Statistics of 407 cases of morbus coxarius treated between 1859 and 1889, exclusive of exsections.—Of these there were in the first stage, 118; second stage, 119; third stage, 82; not mentioned, 88=total number of cases, 407. Results: *cured*—motion perfect, 71; motion good, 142; motion limited, 83; motion ankylosed, 5. Unknown, 78; under treatment, 14; abandoned treatment, 3; discharged, 2. *Died*—exhaustion, 2; phthisis, 1; pneu-

monia, 1 ; tubercular meningitis, 5=total deaths, 9. Total number of cases, 407.

Cases in which I know the result and the kind of splint worn between 1859 and 1889, excluding cases under treatment.—Cures with perfect motion : Long splint, 19=21.59 per cent.; short splint, 53=28.12 per cent. (73). Cures with good motion : Long splint, 34=38.63 per cent.; short splint, 86=44.79 per cent. (120). Cures with limited motion: Long splint, 29 = 32.95 per cent.; short splint, 49 = 25.52 per cent. (78). Cures with ankylosis : Long splint, 3=3.40 per cent.; short splint, 1=0.52 per cent. (4). Deaths : Long splint, 3=1.56 per cent.; short splint, 2=1.04 per cent. (5). Treated with long splint, 88 ; treated with short splint, 192. Total number of cases, 280.—*New York Medical Journal*, April 30, 1892, p. 481.

Osteomyelitis of Streptococcus Infection.—Contrary to the generally accepted statements concerning osteomyelitis due to staphylococci, that it only attacks children in robust health, and then very acutely, the disease under consideration appears to affect only such children as have been recently exposed to some weakening influences, such as acute infectious diseases, or wounds and ulcerations of long standing. The commencement of the disease is insidious, and the first thing noticed by the mother is the gradual development of symptoms of prostration and failing vitality. The child, if brought to the physician at this time, at once awakens solicitude. It lies quietly, pale, with sunken eyes surrounded by dark rims ; its tongue coated, fuliginous ; its skin dry ; its temperature not very high however. Occasionally its face is contorted, it utters sharp little cries, and when disturbed or touched moves its limbs spasmodically, as if in great pain. Examination of the joints at this stage fails to reveal any local change, but whenever certain parts are touched corresponding to one or more bones with their neighbouring joints, exaggerated expressions of suffering may be observed. In the more advanced cases swellings of the joints are more pronounced, and have been seen by the mother. They have developed gradually, and not until the child has been ill for some time. Diagnostic aspiration reveals thick pus or sero-purulent fluid. In the course of the disease further joints generally become the seat of the same affection, and complications may appear at any time in the internal organs and the various synovial sacs. According to the vitality of the child it succumbs sooner or later to the disease, the symptoms of prostration increasing, with failing pulse, inanition, and coma. The diagnosis depends mainly upon the early establishment of joint suppuration, with the great prostration and "typhoid" condition. Differentially we must bear in mind acute articular rheumatism, primary suppurative arthritis, acute tuberculous osteomyelitis (as described by Kiener and Poulet), and syphilitic joint affections. The former are not characterised by such marked prostration, while the fever is generally much higher ; but the syphilitic joint affections may easily simulate the disease. It is understood from the facts brought out by my colleague Dr. Koplik that the cause of the disorder is the pyogenic streptococcus, which from localisations in the bone marrow of the larger bones, produced the joint suppurations as secondary affections ; so that we are enabled, in view of the pathological facts found, to specify the cases as cases of streptococcus osteomyelitis affecting the joints, instead of speaking of them simply as pyæmic.—Drs. Koplik and Arsdale, the *Am. Journal of the Med. Sciences*, May, 1892, p. 549.

Pott's Fracture—*Complications of*.—I should like to call attention to two complications of this injury which I have encountered in four cases,

and which have not heretofore been noticed. In two of these cases the internal malleolus was squarely broken off at its base and had undergone a rotation of 90° on its antero-posterior axis, so that its fractured surface lay parallel to and just beneath the skin. When the first patient came under my observation (in 1888), a few hours after the accident, the the malleolus formed a prominent, freely movable mass; that it was the malleolus could not be doubted, but I was quite at a loss to explain its prominence and its mobility, or rather its unstable equilibrium, for it rolled about freely, but did not shift its position. I exposed it by an incision, discovered the condition, and easily turned the fragment back into place. When the second patient presented himself (1892), the diagnosis was easily made with the aid of what had been learned in the preceding case; it was treated in the same manner. Both patients recovered from the injury and the operation with full restoration of function, and both were shown to the New York Surgical Society. It seems probable that if such a displacement were allowed to remain uncorrected the solidity of the joint would be seriously impaired. In the third and fourth cases the complication was also marked by exceptional prominence and mobility of the fractured malleolus, and the cause was found, on exposure of the parts by incision, to be the interposition between the fragments of a long strip of periosteum that had been torn from the inner surface of the tibia in one, and of a smaller strip of periosteum and a portion of the anterior annular ligament in the other. In both cases recovery followed without incident and with full restoration of the function.—Dr. L. A. Stimson, *New York Medical Journal*, June 25, 1892, p. 705.

[See also article by Dr. Lewis A. Stimson "On Pott's Fracture at the Ankle," at p. 108 of this volume of the *Retrospect.*]

POTT'S FRACTURE—*Diagnosis of.*—The diagnosis can be made with great ease and certainty by the recognition of the points of fracture and of abnormal lateral mobility in the joint and by the deformity, which, even when slight, is so characteristic that the diagnosis can often be made with considerable assurance by the eye alone. I have spoken of the diastasis of the lower tibio-fibular joint as the essential lesion, and it is upon this, therefore, that I think the positive diagnosis should rest. It is indicated by one subjective symptom—pain on pressure with the tip of the finger at the junction of the two bones in front close above the articular edge of the tibia; and demonstrated by one objective sign—abnormal lateral mobility —which can be shown by grasping the foot with one hand so that the posterior portion of the sole rests in the palm, with the thumb close below the external malleolus and the index finger below the internal malleolus, and moving it bodily inward and outward, while the other hand grasps the leg well above the ankle and steadies it. Sometimes the click of the astragalus against the internal malleolus in this manipulation is as distinct as that of the patella against the femoral condyles when it has been raised by an effusion. The advantage of this manipulation is not found solely in the certainty it gives to the diagnosis; it also calls attention in no doubtful terms to the essential points in treatment, and it impresses him who makes it, more than any verbal injunctions could do, with the necessity of actively opposing the tendency to displacement—for he sees the foot slip outward the instant he removes the pressure of his thumb; he sees the necessity of holding it in place, not simply of putting it in place. The immediate reproduction of the displacement appears to be due in part to the contraction of the peroneal muscles, and it may be well to add that, when these and the other muscles of the leg are kept

contracted by pain or the fear of pain, this demonstration of abnormal mobility is thereby made distinctly more difficult. The difference appears at once on the administration of an anæsthetic. I would also call attention to the usual absence at the bedside of what is a common symptom in the books—eversion of the sole. In my experience this is rarely present; only when the outward displacement is exceptionally great or the peroneal muscles tense. In all but the slightest cases there is also a second constant displacement, which can be as readily demonstrated as the former, and which recurs as readily if measures to prevent the recurrence are not taken; it is a displacement of the foot backward, ordinarily for not more than a quarter of an inch. It is demonstrated by grasping the foot with both hands so that the fingers rest on the back of the heel and the thumbs on the front of the lower end of the tibia, and then, the sole being vertical, lifting the foot with the fingers while the leg is held back by the thumbs, and then allowing it to drop back again. This displacement is effected partly by gravity, partly by the contraction of the muscles of the calf. It is more easily recognised by the eye when the foot is in planter flexion, for then a distinct notch can be seen in the dorsal outline immediately below the articular edge of the tibia; but—the importance of the point justifies the reiteration—unless the surgeon's attention is specifically directed to the detection of this displacement and also of the outward one, they will both, as a rule, and except in the most marked cases, pass unrecognised. This statement is justified by the frequency with which this failure to recognise has been observed; and a belief in this frequency and in that of defective treatment due to it is the main reason for bringing the matter before this society. Some of the old unreduced cases prove how great a displacement can pass unrecognised; and in three cases that had been treated in large hospitals and subsequently came under my care for the relief of the disability, the body of the astragalus lay wholly behind the tibia. Of course, the failure to recognise such marked deformity at the end of treatment, after all swelling had subsided, must have been due to inattention; but the inattention is proof of a failure to appreciate the possibilities of the injury. It is, nevertheless, a fact that such extreme backward displacement can pass unrecognised in recent cases even by experienced observers who are aware of the possibility and have specifically sought for the displacement. They make the usual manipulation, which should effect its reduction if it is present, and, as the foot does not come forward, they infer that the displacement does not exist. And it must not simply be conceded that the displacement can be overlooked; we must appreciate that it may be difficult not to overlook it. The muscles are held tense, and the foot does not yield to the surgeon's effort to move it forward; he doubts his observation; he again scrutinises the profile of the foot. An abiding faith in the significance of certain apparently slight deviations from the normal is necessary to save the surgeon from a grave error and the patient from a serious disability. Anæsthesia pushed to complete muscular relaxation, clarifies the situation; the foot comes at once forward and inward for a distance that is always startling, and which vividly suggests that charity in judgment is not only a grace which we may amiably extend to others, but is also one of which we may at any moment stand urgently in need ourselves. To summarise it: Pott's fracture may be diagnosticated by the recognition of three points of localised tenderness on pressure—one over the front of the lower tibio-fibular articulation, one at the seat of the fracture of the fibula two or three inches above the apex of the malleolus, the third at or just below and in front of the internal malleolus. These having been found, exami-

nation should be made by the methods indicated to detect outward and backward displacements and lateral mobility.—*Ibid.*, p. 702.

[See also article by Dr. Stimson, at p. 108 of this volume of the *Retrospect.*]

POTT'S FRACTURE—*Treatment of Old Cases.*—In the treatment of old fractures with much deformity the point of capital importance is, of course, the recognition of the direction and extent of the displacement, the appreciation of the fact that the astragalus and external malleolus are dislocated backward, and that the very noticeable projection of the internal malleolus is to be relieved by bringing the foot forward, not inward. I have always used two lateral, or antero-lateral, incisions. One begins at the front of the fibula, three inches above the ankle joint, is carried down along the bone, passing in front of the displaced malleolus, and then curved forward on the side of the foot; the seat of fracture is exposed, and the lower fragment again separated from the upper one. The second incision begins on the inner side of the tibia at about the same level as the first, passes down to the front of the malleolus, and thence forward to or beyond the tubercle of the scaphoid. Through it the internal malleolus can be detached with a chisel, and the end of the tibia protruded so that it is easy to liberate and mobilise the astralagus and to cut away any new growth of bone that may have formed on the back of the tibia. The foot is then easily restored to its place, the incisions closed without drainage, and a bulky dressing applied and covered with plaster-of-Paris. I change the dressing at the end of a week or ten days, and then apply a light plaster-of-Paris dressing. The patient is allowed to begin to bear his weight upon the foot in the fourth week. The gain in function has also been very satisfactory.—*Ibid.*, p. 704.

[See also article by Dr. Stimson, at p. 108 of this volume of the *Retrospect.*]

RICE BODIES IN COMPOUND GANGLION—*Their Nature.*—We now know, thanks to the work of Schmidt and Weigert, that coagulation does take place in the tissues, and here leads to a necrosis, the so-called coagulation-necrosis. Thus the probability, that the rice bodies are dependent for their origin on the change in the sac wall, again comes to the front. Schuchardt, based upon microscopical examinations of sections of the sac wall and rice bodies, stained according to the Weigert method, maintains that common fibrin does not occur in the rice bodies, but a chemical substance related to fibrin. He also thinks that the rice bodies are but parts of the synovial membrane and sac wall, for they have exactly the same microscopical structure as have those portions of the sac which have undergone coagulation necrosis. The production of the rice bodies may be and probably is due, in part, to the warty outgrowths of the hygroma proliferum, but no doubt is also due to an exfoliation of the necrotic parts of the sac wall, aided by the action of the tendon, for, as Koenig has shown, in stiff joints the rice bodies do not occur. The tendon has been supposed to remain unaffected by the tubercular changes, but later examinations, and more especially the radical operations for tubercular teno-vaginiti, have shown that, though the tendon may be said to possess some immunity, it is at times affected. Tubercles have been seen in its tissue. At other times the tendon is so changed, that under a stream of water coming from an irrigator, it breaks up into bundles of fine fibres. Further, the softening process which may occur in the fungus variety, causing pointing and the discharge of pus and cheesy material, leads, if not operated upon, to a death of the tendon, due, in all probability, mainly to the suppuration,

but aided perhaps by a tubercular affection of the tendon.—Dr. C. S. Evans, *The American Journal of the Medical Sciences*, July, 1892, p. 46.

[See also articles by Dr. C. S. Evans, at pp. 117–124, of this volume of the *Retrospect.*]

SCOLIOSIS—*New Treatment for.*—Schede (*Deutsche medicinische Wochenschrift*, 1892, No. 12) advises the apparatus here described in the treatment of scoliosis, and believes that more can be accomplished by this means than by measures formerly adopted. The apparatus consists of a framework made of gas-pipe, consisting of four upright posts, joined together on three sides by cross-pieces. There are arranged two padded horizontal boards, which are movable, to hold the pelvis firmly. The anterior one is so padded that the symphysis remains free from pressure, so the development of the antero-posterior diameter of the pelvis is not unfavourably influenced. There is an upright bar from which is suspended a head-swing, held by a chain carried over two simple pulleys. A movable horizontal bar is also attached to this bar. By means of a screw it is put at such a height as will put the arms on the stretch when the head is in suspension. To the vertical rod is also attached a ring made of gas-pipe of a size sufficient to go outside the body of the patient. This ring is so arranged as to be readily raised or lowered. In this ring several upright rods are fastened which carry long horizontal screws with large pads on the end next to the body. Two of these pads act as shoulder supports, which are provided with straps. The others are used to make pressure and counter-pressure on the thorax with the view of correcting the deformity. To overcome the torsion, rubber adhesive plaster is placed on the back and sides of the patient; to this plaster is attached a cord which runs over a pulley on a level with the attachment to the plaster, and pulling in a direction to overcome the deformity. Three to ten pounds are placed on the other end of the cord. The function of this is assisted by the pressure-pads, which, being on screws, are adjustable. The head-spring is elevated until the patient rest on his toes. Half an hour is spent in the apparatus morning and evening. In bad cases a plaster-of-Paris bandage may be applied during the night, covering the pelvis and even part of the thighs.—*The American Journal of the Medical Sciences*, June, 1892, p. 715.

SHOULDER-JOINT—*Tubercular Disease of.*—Mondan and Audry (*Rev. de Chir.*, 12e année, No. 3) give the following *résumé* of the conditions found to be present in forty-three cases of tubercular disease of the shoulder-joint which they have had under observation, and in thirty-two cases have made anatomical studies of the resected portions, as also the conditions found present at the operation. Tubercular disease of the shoulder in adolescents and adults is osseous in character and originates in the humerus, although lesions of the surrounding tissues are not rare. The tubercles are most frequently found in the epiphysis, generally in the head or surgical neck, and are multiple. They may be central, but the proportion is nearly two to one in favour of the peripheral lesion, where they develop beneath the cartilage or in the cervical grove. The dominant form of tubercle is the caseo-fungous. Sequestra are not rare in the humerus, nor is the infiltration by tubercle of its head. There are two distinct forms of disease: the one moist, rapidly evolved with or without fistulæ; the other dry, with a tendency toward atrophy and ankylosis, slow in its course of development, and characterised by constant pain. They believe that in every fifty cases of tubercular arthritis there is one of shoulder involvement. The age at which this disease may develop is

not fixed. In their cases it ranged between eight and seventy-one years, although the majority of the patients were about twenty, or at the age corresponding to the osseous union of the epiphysis and diaphysis, which is the latest of unions. They found that traumatism has no direct influence in causing the outbreak of disease, as in forty-three cases only nine could substantiate a history of traumatism. In marked contrast to the historical description of white swelling, which is the attribute of all tubercular joint disease, they find that in tubercular arthritis of the shoulder there is always marked atrophy of all the muscles, but especially of the deltoid, which is markedly atrophied, and suffers a loss of function, if it is not entirely destroyed, its thinness permitting the direct palpation of the head of the humerus. The differential diagnosis is to be made from rheumatoid arthritis, the history of the case and family tendency are the best guides, while the fact that ninety per cent. of these cases are tubercular makes that the more probable form.—*The American Journal of the Medical Sciences*, July, 1892, p. 96.

TUBERCULOUS BONE DISEASE—*Counter-irritation in.*—Counter-irritation, especially the actual cautery, has been of late falling into disuse in tuberculous disease under the erroneous notion that the only object of local treatment is to act directly on the tuberculous tissue. A great deal can be done in these cases by getting rid of the attendant chronic inflammation, and for this purpose the severer forms of counter-irritation, blisters, and the actual cautery, are of value in suitable instances, especially in bone disease and where the bones are deeply seated. The parts most suitable for this treatment are the hip, shoulder, and spine. I have not seen much advantage from the cautery in pure synovial disease, and, in the case of superficial joints, I should fear that it would do harm by increasing the congestion of the synovial membrane. The cautery should be applied freely at a white heat, in the case of the spine for several inches on each side of the spinous processes, in the hip and shoulder, both in front of and behind the joint. Boracic fomentations are then applied till the slough separates and afterwards savin ointment, either pure or diluted with vaseline, in order to keep the sore open for four to six weeks. I believe the best results are got when only the superficial part of the skin is destroyed, but in that case the savin ointment cannot be borne, and the sore must be kept open by repeated applications of nitrate of silver or other caustic. In 24 cases of tuberculous bone disease in which the cautery was employed, 17 began to improve at once and no operative treatment was required. Seven of these cases were hip-joint disease, and in four improvement followed, while in three there was no advantage, but in these three abscesses were subsequently found. Six cases of spinal disease without abscess were also treated, and all improved; in four of these there were commencing signs of pressure on the cord.—Mr. Watson Cheyne, *British Medical Journal*, June 25, 1892, p. 1354.

[See also articles by Mr. Watson Cheyne at pp. 127, 135, and 138 of this volume of the *Retrospect.*]

TUBERCULOUS JOINT DISEASE, ABSCESSES IN—*Their Treatment.*—I do not propose to discuss here the treatment of chronic abscess in detail, and shall only shortly refer to the treatment of chronic suppuration in connection with joints, and in so far as it affects the operation to be performed. And I may say at once that simple drainage of chronic abscesses is now almost universally given up in favour of more radical measures. (1) A chronic abscess being nothing more or less than a tuberculous tumour with a softened centre, the ideal treatment is to dissect it out lil

any other cyst, and this is what I always do when the situation and size of the abscess permits. Where the abscess has started from a tuberculous deposit in the bone, the removal of the abscess and the affected bone leaves a clean-cut wound, which heals by first intention, and thus the process is cut short. For example, in chronic abscess connected with a carious rib, a cure is at once obtained by dissecting out the abscess and removing the affected part of the rib. (2) Where it is not possible to dissect out the wall on account of its size and connections, the next best thing is to make a large opening into it sufficient to admit the hand if possible, and to peel or dissect out the wall; and if the original starting-point is accessible, that ought also to be removed. (3) Failing the possibility of either of these plans, there remains the method of making a smaller incision into the abscess cavity, and getting rid of the wall as thoroughly as possible by sharp spoons, rough sponges, etc., washing out all the *débris*, perhaps filling the cavity with the ten per cent. emulsion of iodoform in glycerine, and stitching up the wound. By this means healing is usually obtained quickly, though the process may have to be repeated more than once; the bone deposit, if present, cannot, however, be satisfactorily cleared out by this plan. Applying these methods to diseases of joints, the treatment of abscesses in connection with joint disease will vary according to the relations of the abscesses and the general extent of the disease. As examples, I may mention the following:— (1) The abscess may be unconnected with the joint, having resulted from a tuberculous osseous deposit which has reached the surface of the bone outside the joint, and there may be no synovial thickening. Under such circumstances, where the connections are such as to render it possible, the best treatment is to dissect out the abscess and remove the bone deposit. Where the abscess cannot be dissected out, the second method should be employed. (2) A similar condition may be present, with the exception that there is synovial thickening. Here, so far as regards the abscess and the osseous deposit, the treatment may be the same as in 1. Whether anything further is done as regards the synovial thickening will depend on the local condition and various circumstances which will be alluded to presently. (3) The abscess may have originated in connection with the synovial membrane, and may or may not communicate with the joint. In such a case we generally find caseous patches in other parts of the synovial membrane, and, though from our experience with aseptic drainage, it is clearly possible to get a good result in some cases without any radical operation, I believe it is on the whole best in most cases to look on the presence of such an abscess as an indication for complete removal of the disease, either by excising the abscess and complete arthrectomy in children, or by excision or amputation in adults. This rule holds good in most cases of disease of the knee-, elbow-, and ankle-joints; in the case of the hip and shoulder, however, I should in a good many cases be content with treating the abscess in the second or third way in the first instance, and possibly removing such portions of the diseased tissues as are easily accessible. (4) The pus may be present in the joint alone. In such a case, if the patient be young, the joint should be laid freely open and search made for osseous deposits; if these are found they must be removed, and complete arthrectomy performed. In adults, however, excision, with thorough removal of the synovial membrane, is the best practice, unless the bone is so extensively diseased, or the other conditions such that amputation seems desirable. Here again the decision must vary with the joint affected. (5) Where we have pus in the joint and also abscesses around it, we have usually to choose between excision

nd amputation, and, considering the great extent of tissue to be removed, nd the prolonged nature of the operation of excision, amputation is sually the best practice. In some cases in children, however, it may be ell in the first instance to try some less radical measure, but that only if he patient is vigorous; if he is weakly, amputation is less dangerous than n extensive arthrectomy.—*Ibid.*, July 2, p. 12.

TUBERCULOUS JOINT DISEASE—*Use of Extension in.*—In the case of uberculous joint disease, surgeons, with very few exceptions, are unanimous in recommending rest, and it is sometimes very striking how much mprovement results even in very bad cases from absolute fixation of the ffected joints. In many cases of joint disease, however, the unrest is not nly due to movement, but also to a large extent to the tonic contraction f the muscles surrounding the diseased parts. The result is that the joint urfaces are kept constantly and firmly pressed against each other, and, as consequence, the chronic inflammation in the bone is kept up, and rapid estruction of the part of the bone which is subject to the pressure takes lace. This is seen in the hip joint, for example, in the flattening of the pper surface of the head of the bone, and in the enlargement of the cetabulum in the upward and backward direction. This muscular contraction, especially in the early stage, may be looked on as symptomatic of one disease; in pure synovial disease there may be marked thickening, ith comparatively little interference with movement within certain limits, ertainly without complete rigidity. Hence, when the bone is inflamed, nere rest of the joint, as obtained by apparatus, will not be sufficient; the nuscles would still be able to contract and keep up the pressure and nflammation. It is, therefore, necessary in these cases to combine with he rest a moderate amount of extension sufficient to tire out the muscles nd prevent this violent pressure of the joint surfaces against each other. Many surgeons object strongly to extension, under the impression that its bject is to separate the joint surfaces from each other, and have pointed ut that to effect this purpose very heavy weights indeed must be employed, nd that such weights would do injury to the joints by stretching the ligaents. All this is perfectly true; but separation of the joint surfaces ought ot to be the object of extension, and even if it were readily possible, is ot at all desirable. The object of extension is not to separate the joint urfaces, but to prevent them from being pressed together—two totally ifferent things. Hence extension is chiefly of use in bone disease; where he case is one of pure synovial disease, and where there is no marked igidity of the muscles, there is no object in applying extension unless eformity is present—indeed, it will probably do harm. And, further, rom this point of view, it must be borne in mind that a weight which elieves the patient in the first instance may, if continued after the tonic ontraction of the muscles has been overcome, cause a great deal of pain nd mischief from stretching of the inflamed ligaments.—*Ibid.*, June 18, 892, p. 1293.

AFFECTIONS OF THE SKIN, ETC.

ALOPECIA AREATA—*Treatment of.*—In a recent number of the *Journ. ut. and Gen. Urin. Dis.*, attention is directed by Dr. L. Duncan Bulkley o a method of treatment which he has found after prolonged experience f great use in cases of alopecia areata of the scalp. The affected area is ghtly brushed with a swab which has been dipped in a 95 per cent. solu-on of carbolic acid. The application is finally rubbed in firmly. It is

seldom applied to more than two or three square inches at a sitting. The remedy whitens and shrivels the skin, and sets up a little inflammation and desquamation. A second application is made at the end of two weeks or more. Dr. Bulkley believes in the neurotic, not the parasitic, origin of the affection, and claims that this treatment is cleanly, convenient, and effective, and more successful than the milder treatment he has tried.—*Brit. Journ. of Dermatol.*, p. 236, vol. iv., 1892.—*The Practitioner*, August, 1892, p. 133.

ALOPECIA AREATA—*Treatment of.*—Dr. P. A. Morrow, of New York, refers to certain points of interest in connection with cases of alopecia areata which have recently come under his observation, and indicates the methods of treatment which have proved successful. The vast majority of cases are, in his opinion, caused by a specific germ. In all cases where there is evidence of a loss of nerve tone he gives the phosphide of zinc and strychnine, a combination of phosphorus, iron, and strychnine, or phosphoric acid with strychnine. In the simpler, more benign cases, where the patches are limited in number and circumscribed, the hair around the margin of each patch is ordered to be closely clipped, and the hair in this "zone of protection" subjected to a modified form of epilation. In recent cases he employs chrysarobin, with or without the addition of salicylic acid. In cases where the disease is severe and more extensive, Dr. Morrow recommends that the hair should be closely cut or shaven, and the entire surface treated with acetic acid mixed with chloroform. He repeats the application two or three times a week at first, and in the intervals directs the use of a stimulating oil, to be followed by a thorough massage of the scalp. In alopecia affecting the hairy structures of the face he also employs acetic acid. For alopecia of the body, the use of mercurial and tar soaps and the employment of sulphur baths are the only measures necessary in Dr. Morrow's opinion. [See *The Practitioner*, xlix. 178.]—*Trans. American Dermat. Assoc.*, pp. 30-33, 1891.—*The Practitioner*, October, 1892, p. 296.

ANTIMONY IN SKIN DISEASES.—Drs. Jamieson and Douglas append the following conclusions to a paper on this subject:—(1) Antimony lowers temperature in some conditions of the skin associated with hyperæmia and dryness of the surface, to a well-marked extent. (2) So far as our observations go, its influence on tissue waste as estimated from the amount of urea excreted, or on fluid loss by the kidneys, is not, under the circumstances detailed, a noticeable one. (3) It softens the skin, imparting increased succulence to its cells, augments insensible perspiration, improves the nutrition of the integument, diminishes hyperæmia, and lessens the tendency to premature and excessive epidermic exfoliation. (4) While advantageous in the early congestive stage of acute eczema, it is contra-indicated during the period characterised by oozing—the second stage of Brocq, that of rupture of vesicles—though it may again prove serviceable at a later era,—the fourth stage of Brocq, that of successive desquamations. We have found this borne out by our experience of a case of eczema treated with antimony, at present in the ward. (5) If Mr. Morris is right, as he probably is, that it is likely to be of special use in cases where there is a functional nervous cause, it may prove of value in diffuse scleroderma, and possibly in myxœdema. (6) As compared with arsenic, authors are pretty generally agreed that the latter is valueless in conditions of the pityriasis rubra type,—whether by this exfoliative dermatitis in its dry forms alone is meant, or if pityriasis rubra pilaris is included. (7) Arsenic restrains the tendency to form bullæ in dermatitis herpetiformis

and pemphigus, and sometimes cures psoriasis if stationary or a first attack; but, on the other hand, it may apparently sometimes convert a psoriasis into a pityriasis rubra. (8) Arsenic in some cases renders the skin muddy, dull, and earthy, or deeply pigmented; it may induce the formation of horny warts on the fingers, or thicken the epidermis of the palms, giving rise to a keratosis, which again may pass on to epithelioma. Such results have not so far been found to follow the administration of antimony, nor are such likely to accrue. (9) The action of antimony may be contrasted with that of pilocarpine. Pilocarpine produces a copious perspiration for a brief portion of the twenty-four hours; antimony bathes the epidermic cells continuously in a gentle moisture. Pilocarpine lessens or cures a pruritus in a dry, atrophic, anæmic, senile skin, by flushing the emunctories, but its rapid stimulant effect is not suited for cases of active hyperæmia, which, as has been seen, are more amenable to the influence of antimony. Both, however, improve nutrition, and aid in the deposition or restoration of diminished subcutaneous adipose tissue.—*Edinburgh Journal*, June, 1892, p. 1081.

ECZEMA—*Collem Plasters in.*—Hans v. Hebra, in an exhaustive *résumé* of the treatment of eczema, thus describes some new plasters. These consist in a combination of anhydrous lanoline and india-rubber, the soft mass so obtained being spread on linen. The capacity for absorption of this basis is nearly unlimited, so that an increase in the percentage of the active ingredients is easily attainable. The collem plaster of oxide of zinc, usually prepared of a strength of 40 per cent., is one of the most useful in eczema. It possesses both macerating and desiccating properties. If placed on eczema which is covered with ever so thick a crust, in a few hours softening of the crust becomes perceptible, so that it can be wiped off, and a more or less copiously oozing surface, corresponding to the stage of the eczema, is exposed. If the weeping is very considerable, so that almost the whole surface is covered with a clear or sanious serosity, the plaster had best be laid aside, and Lassar's paste employed till the oozing diminishes. This attained, the collem plasters can be used anew. The plaster treatment need not be interrupted, if on the removal of the crusts no very moist places are revealed, but a new piece may be applied directly after removal of the former. In a few days, in many cases, a steady advance towards cure becomes apparent. The desiccative effect of the large proportion of zinc is so considerable as to more than counteract the maceration. The plaster adheres without any other means for securing it, and is easily changed. It can also be so employed as to compress the part when subcutaneous œdema is present, and thus occasion its dispersion. The plaster is made by Herr H. Turinsky, Bandage-maker, IX. Schwarzspanierstrasse 1, Vienna.—*Die moderne Behandlung der Hautkrankheiten Clinische Ziet- und Krait-fragen*, 7 und 8 Heft, 1891.—Dr. Jamieson's Periscope, *Edinburgh Journal*, May, 1892, p. 1061.

ECZEMA—*Treatment of.*—At the American Medical Association, June 7, 1892, Dr. Louis A. Duhring, of Philadelphia, read a paper, on the "Treatment of Acute Vesicular Eczema," a disease, he stated, that is frequently seen by the general practitioner. The remedies used often aggravate the disease. The affection generally appears suddenly, and demands active local treatment directed to the relief of the congestion and the cell proliferation. The mode of applying the remedies is the important factor. In acute erythematous eczema washes are tolerated better than salves, and pastes are more useful than salves. In acute vesicular eczema, mildly stimulating washes, followed by salves or pastes, are preferable to washes

alone. "Rubbing in" and friction are usually harmful. The regulation of the distribution of the blood and lymph, and a direct, local, sedative action upon the cutaneous nerve-filaments are the two most important effects desired. One of the best remedies is modified black-wash, followed by the use of cloths spread with oxide of zinc ointment or paste, two or three times daily. The wash should be diluted with one or two parts of lime-water, and a little mucilage of tragacanth added. A solution of boric acid is useful, especially when the horny layer is absent. Weak resorcin or salicylic acid washes are soothing. A plasma of five parts of tragacanth, two parts of glycerine, and ninety-three parts of boiling water is tolerated when fats are objectionable. A lotion holding in suspension prepared calamine, ʒss; ozide of zinc, ʒss; glycerin, ♏xv; lime-water, f ʒ iv, and to which may be added resorcin, tincture of coal-tar, carbolic acid or ichthyol—all weak—is valuable. The best ointments are diachylon, freshly made from purest olive oil; oxide of zinc and bismuth; refrigerant "cold creams" containing water are also of service. Dusting-powders are not so useful. Cleansing agents should be used cautiously and sparingly. Rest, for the circulation of the fluids, is of importance, especially when a large surface is implicated.—*Medical News*, July 16, 1892, p. 76.

Naphthol in Skin Diseases.—In diseases of the scalp, pityriasis, seborrhœa, seborrhœal eczema, impetiginous eczema, pediculosis, psoriasis, alopecia, and alopecia areata, I may say naphthol has given me as general satisfaction as any other single remedy. I now, more than formerly, combine the bichloride of mercury with it in several of these conditions, and with increased effect. If alopecia is due to any of these diseases, then napthol tends to check the loss of hair by making the scalp healthy. The stimulating effect upon the healthy scalp has, it seems to me, prevented further loss of hair in many cases, and in some instances has undoubtedly brought about an increased growth. I believe, too, it hastens the natural return of the hair in syphilitic alopecia, as well as that following erysipelas, typhoid, and other debilitating forms of sickness. In women, especially, has renewed growth of hair been at times very prompt and satisfactory in the ordinary forms of alopecia. In alopecia areata I have had several recoveries after a course of treatment both surprising to me and gratifying to the patient by reason of its brevity. In such obstinate diseases as ichthyosis and prurigo of Hebra the results have been very satisfactory; while in milder affections, such as acne, chromophytosis, ringworm, sycosis, etc., napthol has its use. A good prescription is:—℞. Napthol beta, 15 gr.; Sulph. prec., 20–40 gr.; lanoline, 180 gr.: cosmoline, ad 1 ounce. M. For scabies the proportion of naphthol can be increased to ten per cent. The following is the prescription which I have mostly used for the scalp:—℞. Naphthol beta, 60–120 gr.; Ol. ricini, ½ ounce; Ol. amygdal. amar, 1 drop; Ol. aurantii flor., 4 drops; Spt. vini. rect., 2½ ounces. M. To be applied to scalp once daily. In the full strength I have once seen an eczema produced in a scalp the seat of pityriasis. A practical point in regard to the way ointments should be made. I often see ointments dispensed with the naphthol crystals simply suspended in the base, and this may account for many failures put down to the discredit of the drug. Now, while but slightly soluable in water, it is freely so in alcohol, ether, chloroform, benzole, etc., and it should be ordered to be first dissolved in one of these before mixing with the base, or the druggist will probably neglect it. Perhaps as good a plan as any is that suggested by Hardy, of dissolving in ether, then evaporating the ether with heat before adding the fatty base. I have made extensive use

of naphthol soap (two-and-a-half per cent.), with or without sulphur, in parasitic diseases, acne, dry scaly conditions, pityriasis rosea, and pruritus, with often decided benefit.—Dr. C. W. Allen, New York, *New York Medical Record*, July 23, 1892, p. 92.

PASTA CERATA.—Pasta cerata is another ointment base introduced by Dr. Schleich of Berlin, the "final components" of which are yellow bees'-wax and water. It is creamy, salve-like, and smells of honey, is of a bright yellow colour and even consistence. It is antiseptic, and, containing no fat, does not turn rancid. On drying, the pure wax alone is left. Under its influence wounds granulate freely, and quickly cover with epithelium; the surrounding skin, moreover, is never irritated. It can be easily mixed with iodoform, dermatol, sulphur, sublimate, etc., the drugs being brought closely in contact with the open or diseased surfaces, and on drying, what is practically a medicated plaster is formed. On uncovered parts a layer is rubbed slightly on; if necessary, to prevent removal by the clothes, a simple bandage may be applied. It is readily washed off, and does not grease the hands or clothes. The layer of paste should be quite thin, in order to prevent any maceration by retained secretions, but its strength may be improved and increased by covering it with a piece of gauze or thin layer of wadding. It forms an excellent dressing for burns of the first or second degree, for young and recent wounds, dry eczemas, ulcers of the leg, and for the promoting of healing of healthy granulations. It and its preparations can be had from M. Radlauer, Friedrichstrasse, Berlin. —*Deutsch. Med. Zeitung*, 7th December, 1891, and *British Journal of Dermatology*, January, 1892.—Dr. Jamieson's Periscope, *Edinburgh Journal*, July, 1892, p. 92.

RINGWORM—*Treatment of*.—At the British Medical Association, 1892, Dr. Alfred Eddowes read a paper on the treatment of ringworm of the scalp. After referring to the success which Dr. Unna had obtained by his method with chrysarobin, he proceeded to describe a modification of the method which he himself now employs in out-patient practice. The essential preparations are a mild sulphur ointment and a compound chrysarobin ointment. During the first week the scalp is washed every two or three days with soft soap or soda and water and dressed daily with sulphur ointment. For as many weeks as necessary afterwards the scalp is systematically treated by the chrysarobin and the sulphur ointments according to a plan which the author described in detail. In private practice and when thorough supervision could be exercised, he recommended the plan as carried out by Dr. Unna himself; but for out-patient hospital practice he found his own modification was more suitable, though not so rapidly successful. When the ringworm occurred in schools he did not consider it at all necessary that children should lose the advantages of education and be prohibited from attending their classes because they happened to have ringworm of the scalp. In his opinion they could be treated by a simple method, which he described, until the vacation or other convenient time, and then be taken in hand more thoroughly if still uncured. Against the general or extensive employment of mercurials he felt very strongly, and for reasons which he gave he much preferred even dirty-looking and somewhat irritating substances to such as might contain poisons and not be so readily controlled.—*The Lancet*, August 6, 1892, p. 332.

RINGWORM—*Treatment of*.—At the British Medical Association, 1892, Dr. Phineas Abraham read a note on Ringworm, and mentioned a method of treatment which for some years past he had found very useful. An ointment, containing carbolic and salicylic acids (of each half a drachm to

one drachm to the ounce), was rubbed in with a stiff brush twice daily, the scalp being shaved occasionally, kept closely cropped and always greasy, a cap being worn and changed daily, and the head washed with an antiseptic soft soap once a week. A number of cases had thus been cured in a comparatively short time though the majority has required several months. Additional applications, after washing, of carbolised liniment of iodine, have occasionally been made in obstinate cases of mercuric chloride or iodide (one to two grains to the ounce) has been added to the ointment. His experience had been that the more intractable instances had occurred in blonde children and in girls, and two of the most troublesome cases were in young albinoes. He had met with three cases in adult women, one being very extensive and difficult to cure. He doubted whether Dr. Unna's method would be much used in hospital practice in this country on account of the time and manipulations required in applying the dressings, and alluded to the use of chrysarobin for many years by Mr. Hutchinson, Mr. Tay, and others. He observed that the prophylaxis of this disagreeable disease was insufficiently attended to. Although every source of contagion could not be always guarded against, one recommendation, long ago made by Dr. Liveing, should be generally adopted—viz., that children going to the hairdresser should always take their own brushes and combs with them.—*The Lancet*, August 6, 1892, p. 332.

SWEATING, EXCESSIVE—*Treatment of.*—Excessive sweating is most troublesome in the feet, decomposition readily taking place and leading to maceration of the skin and ulceration. It is essential that there should be the greatest cleanliness, not only of the feet but likewise of the stockings and boots. The feet should be washed morning and evening, and if necessary several times a day, the socks and boots changed two or three times daily, and the latter well ventilated. It is quite sufficient to wash the feet with lukewarm water, and afterwards rub with some astringent such as Eau de Cologne. To prevent maceration of the epidermis by the excessive secretion, and the formation of painful fissures, inunction should be adopted, using salicyl-lanoline, two per cent, which does not decompose; and the soles of the feet covered with a fold of linen smeared with ointment. Especial care should be taken to lay it between the toes, as here on account of friction eczema intertrigo is apt to develop. A powder, such as salicylic acid with talc, may be used instead of ointment. This suffices for the majority of cases. Chromic acid has been followed by symptoms of poisoning, and ought not to be employed. In obstinate cases Hebra's ointment or 10 per cent. boric acid lanolin should be applied on soft linen and continued for fourteen days without washing. The thick epidermis peels off; and when the soft skin is exposed, warm water may be used for the first time. Excessive sweating in the face, axillæ, and hands is much more troublesome and uncertain of cure. The face should be washed with Eau de Cologne, and powdered, and the hands frequently cleansed with water, and then with alcohol or ½ per cent. tannin solution. Tight gloves are forbidden, and the use of roomy woollen ones recommended. The axillæ must be washed frequently with soap and water and astringent lotions. To prevent eczema, cotton-wool covered with powder should be placed in the armpits; and, according to Saalfeld, the so-called "sweat folds" used by ladies, while protecting the clothing from the excessive secretion, require the use of pads of wool to absorb the sweat which is only too apt to decompose.—*Therapeutische Monatshefte*, No. 7, 1892. *The Practitioner*, August, 1892, p. 135.

SYCOSIS.—Kromayer (*Therap. Monatsh.*, April, 1892) says that sycosis *is always* due to micro-organisms, either the fungus of herpes tonsurans or

the staphylococcus. The two points in the treatment consist in (1) preventing auto-infection, and (2) curing the infected places. The latter is effected by depilation and the use of Rosenthal's ointment (sulphur and zinc oxide), but if thick infiltrations exist scarification or scraping may be necessary. If many pustules are present incision and the application of solid nitrate of silver may be useful. Auto-infection is prevented by depilation of the sound hairs in the neighbourhood and the vigorous application of a strong spirit solution of corrosive sublimate. Thus in the evening depilation is performed and the ointment applied, and on the following morning the parts are cleansed with paraffin from the remains of ointment, secretion, etc., then disinfected with the mercurial solution and covered with ointment.—Epitome of the *British Medical Journal*, June 25, 1892, p. 103.

TUMENOL IN SKIN DISEASES.—Tumenol is the name given to a preparation recommended by Neisser (*Deuthche medicin. Wochenschr.*, 1891, No. 45) as an efficacious remedy for some forms of eczema and for the relief of itching. Like ichthyol, tumenol is prepared from the bituminous layers of earth. While the basis of ichthoyol is a substance containing a large proportion of sulphur, that of tumenol consists of unsaturated carbohydrates having a strong affinity for oxygen and acting as reducing agents. Tumenol is obtained from these carbohydrates by the action of concentrated, fuming sulphuric acid. Tumenol is not an elementary body, but a mixture of tumenol-sulphone, or tumenol oil, and tumenol-sulphonic acid, or tumenol powder. Tumenol is with difficulty soluble in water, but makes a clear solution with a mixture of alcohol, ether, water, and glycerine. Tumenol has been employed as an ointment (from 5 to 10 per cent.) tumenol oil has been used pure or as an ointment; tumenol-sulphonic acid has been used as a powder or in a 5 per cent. solution of water. Tumenol is of black colour; it leaves no permanent stains upon linen; it has a faint, inoffensive odour; it has no antiparasitic activity; it is non-toxic to animals; it is but slightly irritant. The therapeutic applications of tumenol are: 1, as a drying, antiphlogistic agent, facilitating cicatrisation, especially in moist eczemas, erosions, excoriations, superficial ulceration; 2, to relieve itching, not only in parasitic dermatitides and in eczema, but also in forms of prurigo and pruritis.—*Berliner klin. Wochenshr.*, 1891, No. 10, p. 235. —*Medical News*, April 16, 1892, p. 438.

AFFECTIONS OF THE EYE, EAR, THROAT, AND NOSE.

ADENOID VEGETATIONS.—Adenoid vegetations in children are removed by the following simple method, given by Dr. Dessar (*Archives of Pediatrics*, May, 1892):—The experience of the author has taught him that adenoids in children are best removed in a series of operations without an anæsthetic, rather than in a single sitting under anæsthesia. He seldom has to resort to any instrument outside of three sizes of Lowenberg's forceps. The child is placed either in a chair or the mother's lap, and the arms held firmly, the forceps are then quickly introduced into the vault of the pharynx, pushed up as high as possible, the blades widely separated, then closed, and the sheaf of the instrument slowly forced downward. If too much resistance is encountered too much tissue has been grasped. Much harm may be caused by improper or poorly constructed instruments. After one or two sittings children usually become more courageous and the mouth-gag is not necessary. Sittings are continued until digital examination reveals a smooth surface on the vault of the pharynx. Adenoid tissue on the lateral walls and in Rosenmueller's fossæ are to be

scraped off with a lateral cutting curette. The author has devised two small instruments, made by Reynders, one edge being blunt, and made to cut one from right to left, and the other from left to right. The advantages gained in operating on children in the foregoing manner are:—(1) The absence of disagreeable symptoms following the use of an anæsthetic. (2) The absence of profuse hemorrhage. (3) The absence of pain after the operation, and of bronchitis brought on by blood entering the bronchial tubes, as so often happens after anæsthesia. (4) Short time consumed in operating. (5) The consent of parents objecting to an anæsthetic.—*New York Medical Record*, June 4, 1892, p. 633.

AURAL POLYPI.—Aural polypi are usually the consequences of neglected otorrhœa, and should seldom occur were such cases properly treated. They are sources of great misery and discomfort, and sometimes of danger. They should usually be removed as soon as detected. The cases are never devoid of some risk. No one should undertake them unless he is confidently able not only to remove the growth, but also to carry out the after-treatment so essential in these diseases, and to meet any untoward complications which may unhappily occur in the conduct of the case.—Mr. Marmaduke Sheild, p. 192.—*The Lancet*, May 28, 1892, p. 1272.

CATARACT EXTRACTIONS—*Management of Prolapse of the Iris after.*—The operation of simple cataract extraction is followed in a small percentage of cases by prolapse of the iris, and this occurs without any fault of the operator or patient. But after having performed 100 cases of simple extractions, I have found that, if dealt with during the first twenty-four hours by the following method, it is of very slight importance. The extraction is performed in the patient's own bed; no speculum is used, and the lens cavity is washed out with warm water. From twenty to twenty-four hours after the eye is dressed and the upper lid raised, when, should there be any prolapse, however slight, the patient is put under chloroform and the prolapse excised, any tendency to adhesion at the edges being freed with the spatula. In doing the iridectomy the scissors should be held at right angles to the wound, and the iris cut at one snip, when, as the corneal wound has been kept open by the prolapse, the iris usually falls readily into place. No irritation is caused during the first twenty-four hours by the prolapse, but if left much longer the iris becomes irritated and inflamed by the healing wound compressing it, and then it is much more difficult to free its edges; also the eye does not so well bear the interference. All the cases made an uninterrupted recovery.—Mr. W. T. Cant, Surgeon Lincoln County Hospital, *British Medical Journal*, October 15, 1892, p. 834.

DEAFNESS AND NASAL STENOSIS.—At the British Laryngological and Rhinological Association, on July 1, 1892, Mr. Bendelack Hewetson read a paper having for object to show that the tendency of the modern face to become narrow has led to obstruction of the nostrils and its consequence, mouth breathing. This tendency he attributed to the fact that civilised people partake principally of soft food which does not exercise the muscles of mastication sufficiently and leads to "devolutionary changes" in the bones of the face as a whole. He had confirmed this hypothesis by numerous observations on less civilised peoples among whom the occurrence of nasal stenosis was almost unknown. He pointed out that the result of nasal stenosis was to injuriously affect the development of the thorax and of the intelligence, and he remarked on the fact that a very

large proportion of idiot children were habitual mouth-breathers. He showed an instrument which he had devised to restore the patency of the nasal canal. It resembled a glove-stretcher, and it was used by introducing a blade on either side of the septum, and then forcibly separating them so as to press the external walls of the nostrils outwards. When the turbinated bones were hypertrophied he removed them beforehand, and if adenoid growths were present they were removed at the time of operation. The results as shown by photographs were very remarkable. The aspect became markedly more intelligent and the hearing was usually restored within a month. He remarked incidentally that Politzer's insufflator had done much to retard the advance of knowledge in respect of these affections by the brilliant but ephemeral results which it gives. After having gone through the operation children who had been habitual mouth-breathers could even sleep with the mouth closed. After forcible dilatation he inserts celluloid tubes to maintain the patency of the passage, and he was careful to preserve the nasal cavities as far as possible aseptic. His earlier cases had developed febrile symptoms, but since he had used antiseptic irrigations no rise of temperature had been noted. He had never seen any untoward results follow the operation.

Mr. Mayo Collier said he had listened to the paper with mingled feelings of surprise and displeasure. He declined to accept the preposterous theory put forward by the author under the specious designation of a "process of devolution," whatever that might be. The use of such a term, he urged, was a sign that he who used it wished to disguise his ignorance of what he was talking about. He could not understand a devolutionary or any other process of degeneration stopping short at the bones and muscles of the face. Moreover, the author has brought forward no scientifically-expressed reasons for his conclusions. He recalled the facts relating to the causation of nasal stenosis which he had brought before the Society at their last meeting, in which the effects of atmospheric pressure were shown to account for the resulting deformities. He characterised the use of such an instrument as that shown by the author as a barbarity, and its use without looking into the nose as a scandal to surgery. He pointed out that in the vast majority of cases of nasal stenosis deflection of the septum was present, and the result of the author's treatment would be to dislocate or fracture the septum without any provision for keeping the fragments in place. If the obstruction were due to enlarged turbinated bones or polypi, the presence after operation of damaged and sloughing tissues could not fail to be harmful. (The President pointed out that the use of the instrument was not recommended indiscriminately in all cases.) He did not hear any attempt at differentiating the cases in which it should or should not be used. Reminded that the tubes served to keep the parts in place, he said he would withdraw that portion of his remarks, and he was even prepared to admit that in a few cases of cartilaginous deflection of the septum the instrument might find a useful application.—*Medical Press and Circular*, July 27, 1892, p. 89.

ECTROPION TREATMENT.—M. Panas having had to perform operations for the relief of ectropion on six occasions lately, gives the results of this experience in a paper read before the Academy of Medicine of Paris. He finds that the best method, when it can be effected, is to take the flap from the temple and leave a living pedicle. But in many cases of burn this is impracticable, and the new skin must be taken from other parts. The Taliacotian method seems to have fallen into undeserved disuse, but the objection to it is that the position in which the arm has to be kept,

that is, with the inner part of the arm applied to the face, is so extremely painful after some hours that few patients have the fortitude to continue the treatment. He himself has, however, adopted the method of applying a free portion of skin, cut to shape, taken from the inner part of the upper arm just above the elbow joint. The skin both of the eyelid and of the forearm should be carefully washed with soap and water, the edges and surface of the ectropion revivified; and then the flap cut away, freeing it completely from fat. It should be fixed in position by several sutures, and dressed with dry lint which has been rendered aseptic; permanent union is effected in a week.—*Archives d'Ophthalmologie*, tome xi., No. vi., p. 483, 1891.—*The Practitioner*, April, 1892, p. 294.

GRANULAR LIDS.—(Darier, *Archives d'Ophthalmologie*, February, 1892.) For those cases of granular lids which are not benefited by the ordinary antiseptic caustic treatment, the following method is recommended by Darier, and has been successfully carried out for more than a year. All the cases, numbering 130, were much improved, and a great majority quite cured. The patient being anæsthetised, the lids are thoroughly everted and the palpebral fissure split, if necessary. Every granulation is incised and then scraped out with a small sharp spoon. The lids are thoroughly scrubbed with a brush of short, hard bristles, and a 1:500 sublimate solution is well rubbed in with absorbent wool. Iced compresses are applied for the first day. The lids must be everted, any adhesions separated, and the eyes bathed with a strong sublimate lotion every day. In about a fortnight the conjunctiva will be smooth and healed, but the patient must be kept under observation for a month longer to guard against a relapse.—Mr. Secker Walker's Abstract, *Medical Chronicle*, April, 1892, p. 58.

HEMORRHAGES INTO THE LABYRINTH IN CONSEQUENCE OF ANÆMIA.—Dr. J. Habermann, of Prague, reports (*Archiv f. Ohrenheilk.*, vol. xxxii., p. 82) two cases of hemorrhage into the labyrinth, one in consequence of pernicious anæmia, the other in consequence of simple anæmia. In the first instance, the patient was a young servant girl, twenty-one years old. Post-mortem, among other conditions, revealed hemorrhages into the meninges, brain, pharynx, pericardium, and small intestine, but none into the retinæ. An examination of the right auditory organ revealed neither micro- nor macroscopic changes in the middle ear. In the cochlea, however, there was a small hemorrhage in the upper end of the ligamentum spirale, in the region of the anterior periphery of the basal whorl, of the scala vestibuli, and a somewhat larger one in the basal whorl in the upper half of the canalis ganglionaris. Here the blood was between nerve-fibres and the ganglion cells. Extensive hemorrhages were found in the vestibule and in the semi-circular canals; also between the ligaments of the utriculus, on the posterior wall, and on the outer wall, near the posterior edge of the stapes (oval window). Copious hemorrhage also had occurred near the mouth of the aquæductus vestibuli, and in the external semicircular canal. The extravasation of blood was supposed to be due to diapedesis. The deafness and tinnitus aurium complained of during life was referred to the hemorrhages. The vertigo could have been due to the simultaneous lesion in the brain. The second case of labyrinth-hemorrhage, the result of simple anæmia, occurred in a young woman twenty years old. In this patient there ensued hemorrhages into the stomach, the intestines, and then the retina. Finally, there occurred hardness of hearing, tinnitus aurium, and, at times, vertigo. Treatment

of the anæmia was followed by improvement in hearing.—*The American Journal of the Medical Sciences*, July, 1892, p. 108.

MASTOID PROCESS—*Operations Upon the.*—Heiman (*Arch. of Otol.*, xx., 2) sums up the indications for the operations as follows: (1) In acute purulent otitis media, complicated with inflammation of the mastoid process, when the inflammatory systems do not yield to antiphlogistic treatment and Wild's incision. (2) In acute and chronic purulent otitis media, when the escape of the secretion is impeded by granulations in the middle ear or stenosis of the external auditory canal, or when there is a suspicion of inflammation of the mastoid process. (3) When the mastoid process is apparently healthy, but the removal of pus or cholesteatomatous masses through natural channels is impossible, and symptoms dangerous to life manifest themselves. (4) In congestive abscesses and fistulas in the region of the mastoid process. (5) In persistent, continuous pain in the mastoid process, yielding to no other treatment, especially when it seems sensitive to pressure. (6) As a prophylactic operation, in symptoms of retension of secretion and inflammation of the mastoid process, when death is to be feared on account of imperfect disinfection. (7) In acute purulent otitis media, in which there is no inflammation of the mastoid process, and no retention of secretion, but in which the discharge is very profuse, does not yield to the usual methods of treatment after a certain time, or even increases. (8) When there are distinct symptoms of inflammation of the brain and the meninges. Heiman has used trephine *à crémaillière* of Pasteur for opening the mastoid, and has received the following impressions from its use: (1) The removal of the compact portion of the mastoid process is much more rapid than with the mallet and chisel. (2) The edges of the wound need not be rendered smooth after the operation. (3) The different size of the trephines permits the formation of a wound in the bone of the desired size. (4) Shock is entirely obviated. (5) The depth of the wound can be graduated with exactness.—*New York Medical Journal*, June 11, 1892, p. 665.

OPTIC NEURITIS AFTER INFLUENZA.—[At the Ophthalmological Society on June 9, 1892, Mr. Simeon Snell reported two cases of double optic neuritis following influenza.] Both patients were females, one aged 19, the other 13½. In each case sight failed a few weeks after recovery from an attack of influenza. In the elder girl the neuritis had nearly passed off. When she first came under observation the optic discs were atrophied, and there was no perception of light. The younger patient was seen three weeks after the sight began to fail; the neuritis was then well marked. Vision was in the right eye $\frac{5}{200}$, in the left eye $\frac{1}{200}$. The neuritis had now to a great extent cleared up, but the discs were atrophic, and there had been very little improvement in sight. Mr. Snell referred to the cases published by Macnamara and Lee. Mr. Marcus Gunn mentioned a case under his care at Moorfields, in a man aged forty-five. There were very slight changes in the discs, but vision in one eye was abolished, and in the other was slightly defective. He thought the case was one of retro-ocular neuritis, and an attack of influenza a short time previously was the only cause to which the condition could be ascribed. Recovery began in a couple of weeks, and the blind eyes regained useful vision. Mr. Cross (Clifton) referred to two cases he had seen, both in young women, in whom there was no evidence of intracranial disease, and nothing which seemed to bear a casual relation to the neuritis except influenza. In these cases vision failed rapidly within a few days of the attack. Mr. McHardy spoke of two cases he had seen, and which he had considered as most probably

due to influenza, no other cause being ascertainable. Both his patients were females, and in both there was temporary albuminuria. He had treated them by absolute rest in bed, and the administration of iron; recovery had ensued.—*British Medical Journal*, June 18, 1892, p. 1308.

OTITIS MEDIA—*A New Boric Acid Preparation for.*—Dr. Max Janicke, of Görlitz, recommends the use of a neutral borate or tetra-borate of soda, in the treatment of chronic purulent otitis media. This preparation is obtained by heating equal parts of boric acid, borax, and water. Upon cooling, the precipitate will be found to be neutral in reaction. It is soluble to the extent of sixteen per cent. in water at the ordinary temperature of the room, while in boiling water it is soluble to an almost unlimited extent. This salt possesses the valuable peculiarity that, unlike other salts, it does not precipitate from its hot concentrated solution immediately upon cooling. Precipitation does not occur for some time after cooling, so that solutions of fifty per cent. may be used in the drum cavity. Thus, a large quantity of an antiseptic material can be introduced into and kept in the drum-cavity for a long time. Once in twenty-four hours is often enough to apply the solution in cases of moderate discharge, while in slight discharges less frequently will answer. The neutral borate of sodium is extremely mild and unirritating. After the use of the above-named solution in cases of large perforation in a total of the membrana tympani, some of the same neutral salt may be blown into the ear.—*Archiv für Ohrenheilkunde*, vol. xxxii., pp. 14-24.—*The American Journal of the Medical Sciences*, July, 1892, p. 106.

OTITIS MEDIA—*Deafness Due to the Non-Purulent and Chronic Form.* —Gradenigo (*Ann. des mal. de l'oreille et du larynx*, xvi., 12) summarises as follows :—Chronic catarrhal otitis media is generally characterised by a slowly progressive morbid process, which is usually located in the middle ear, but which often extends to the internal ear, and causes more or less complete deafness. As regards the prognosis, two principle circumstances are to be considered : (1) The existence or absence of functional lesions attributed to the internal ear, in addition to functional lesions located in the transmitting apparatus. (2) The existence or absence of retraction of the drum-head. Some cases are distinguished by the predominance of morbid phenomena, which must be referred to the drum-head and Eustachian tube—such as redness and retraction of the membrane. In other cases the lesions are generally located in the vestibular wall—such as ankylosis of the stapedo-vestibular joint. In still other cases the lesions of the internal ear predominate. Gradenigo considers the subject of treatment under five heads, as follows : I. Direct treatment of the ear : (1) through the external auditory canal, by massage of the ossicles, by massage of the tympanic membrane, and by intratympanic surgery ; (2) through the Eustachian tube by catheterism with a simple air-douche, by injection of medicated vapours through the catheter into the drum, by injection of liquids through the catheter into the drum, or by the methodical introduction of bougies and massage of the Eustachian tube. II. Local treatment of the nose. III. General constitution treatment. IV. Treatment by the electric current.—*New York Medical Journal*, June 11, 1892, p. 667.

OTITIS MEDIA.—*The Necessity for Making a Complete Search for Pus within the Cranium in Cases in which Intracranial Suppuration is Suspected.* —Mr. Percy Dean publishes an important case of cerebellar abscess following otitis media (see p. 199), and prefaces his narrative with the following observations :—In every case of cerebral abscess following otitis media the surgeon can, with one skin flap and with one trephine hole, explore

both the temporo-sphenoidal lobe and the cerebellum. It should be laid down as a rule that in all these cases the surgeon must be prepared, before commencing the operation, to search, if necessary, both above and below the tentorium. The point recommended by Barker for exploring the temporo-sphenoidal lobe is an inch and a quarter behind and two inches above the centre of the external auditory meatus and for the cerebellum a point an inch and a quarter behind and an inch below the centre of the external auditory meatus. It is clear that these two spots could not be conveniently included in one skin flap and certainly could not be reached by one trephine hole. If the pin of the trephine be placed one inch behind and a quarter of an inch above the external auditory meatus, a part of the lateral sinus and the dura mater just above it are exposed. After slightly enlarging the hole upwards with a pair of Hoffman's forceps (the work of two minutes) the dura mater can be incised and an exploration of the temporo-sphenoidal lobe satisfactorily carried out. If the pus is not found the trephine hole can be enlarged for about one third of an inch downwards and backwards, exposing the whole diameter of the lateral sinus and the dura mater for a small extent below it. By incising the dura mater below the lateral sinus the cerebellum can be easily explored within five minutes of exploring the temporo-sphenoidal lobe. It is well known that in some cases it is impossible to diagnose cerebral abscess from meningitis. In both cases the most evident symptoms are due to cerebral compression, and it may be impossible to say whether the inflammatory exudation is localised or diffused. If after exposing the brain evidence of meningitis is present and no pus can be found, the lateral ventricles should be tapped by inserting a trocar inwards and slightly upwards just above the lateral sinus. It is evident that the only satisfactory way of relieving the pressure caused by the inflammatory effusion of meningitis is to drain the lateral ventricles. The patient is dying from the effects of cerebral compression, and by relieving this pressure the only chance, and that a very slight one, of recovery is given. The symptoms caused by thrombosis of the lateral sinus—"lateral sinus phlebitis," as it has been called—are vague and may easily be mistaken for those caused by abscess or meningitis. Indeed, one of the latter conditions may be present with the lateral sinus phlebitis. It is evident that by the operation I have just described the lateral sinus can be easily examined. An exploring needle connected with an aspirator, or, better, a hydrocele trocar, can be inserted into the sinus. If blood flows freely from the trocar, thrombosis of the lateral sinus can be excluded. I have explored the lateral sinus in this way with a small hydrocele trocar on two occasions, and no bad results have followed. If thrombosis were present, the operation suggested by Horsley and successfully carried out by Ballance should be performed. We see, therefore, that by a small operation, necessitating but little shock, nearly all the grave intracranial complications of chronic otitis media can be satisfactorily treated, an abscess in the temporo-sphenoidal lobe or in the cerebellum can be drained, the lateral sinus can be explored and the intracranial pressure caused by meningitis can be relieved. It will be noticed in the account of the operation that a small hydrocele trocar was used for exploring the brain and the lateral sinus. It is very convenient and easy to manipulate; if it be thought that the canula is plugged, the reinsertion of the trocar clears up the doubt. The value of a silver drainage-tube in treating abscesses of the brain I fail to appreciate. An ordinary india-rubber tube adapts itself well to alterations in the size of the abscess cavity as it is healing; it can be easily shortened and is much more readily obtained in an emergency than a silver one.—*The Lancet*, July 30, 1892, p. 251.

OPTIC NEURITIS AFTER MEASLES AND INTERMITTENT FEVER.—Woods (*Arch. of Ophthal.*, January, 1892) publishes notes of two cases both in children, in which optic neuritis, passing into atrophy, occurred during or after an attack of measles. In neither case was the attack of measles such as to give rise to any anxiety, and indeed the first symptom which drew attention to the eyes was failure of sight. Woods refers to some of the already published cases of optic neuritis following measles, and, after discussing the theories advanced in explanation of this complication, concludes that cases of blindness after this exanthem seem to be of two kinds :—(1) Those showing no eye lesions until late in the history of the case ; (2) Those with marked neuritis from the beginning. The former are apparently due to cerebral lesion (probably vascular), with consecutive nerve disease ; the latter to basal meningitis and neuritis. In the same article the author records a case of optic neuritis following intermittent fever, in which complete optic atrophy ensued.—Epitome of the *British Medical Journal*, April 9, 1892, p. 57.

OZÆNA—*Treatment of.*—Dr. Tarbau, of Davos, has used the following simple combination in ten cases of ozæna with the best results :—Iodol, tannic acid, and borax, equal parts, used as a snuff. At first it may be taken five or six times a day, later three times daily, into each nostril. It is to be noted that no other local applications, such as douching, were combined with the use of this powder. Discharge and the formation of crusts ceased, or were at least so diminished that they did not trouble the patient ; the fetor disappeared for a varying length of time, and as soon as it again became perceptible, the use of the powder was resumed. It was especially efficacious in cases where hypertrophic points were present in the nose along with atrophy. In very obstinate cases, treatment must of course be energetic. In such cases, Dr. Solis-Cohen recommends the local application of bromoform, preceded by a cleansing of the parts with peroxide of hydrogen. As it is volatile and the action rapidly passes off, he advises iodoform insufflations to follow.—*Therapeutische Monatshefte*, No. 5, 1892.—*The Practitioner*, August, 1892, p. 133.

OZÆNA—*Treatment of.*—Dr. Meijer regards the treatment of ozæna by means of nitrate of silver spray as superior to all other means. He first packs the anterior nares with dry cotton for twenty to thirty minutes, to remove crusts and mucus. The tube of a spray apparatus (pulvérisateur) is introduced well into the cleansed nostril, and ten or twelve drops of a two per cent. solution of silver are sprayed in, care being taken not to moisten the skin or anterior mucous membrane, which is apt to bring on headache, flow of tears, and other disagreeable symptoms. The strength of solution is increased daily, until at the end of four days a fifteen per cent. solution is employed, at the end of eight days a twenty-five per cent. solution which is continued for a week. Now the application is to be made only every second day, and treatment continued until crusts cease to be formed, which will be a matter of a few weeks only, in cases which under old plans of treatment lasted two or three years.—*L' Union Médicale du Canada.—New York Medical Record*, April 2, 1892, p. 392.

TYMPANUM—*Curetting the.*—This operation is growing in favour, but it should be undertaken, in my judgment, with exceeding care and discrimination. The surgeon has to remember that he is dealing with a cavity whose near surrounding anatomical relations are vital. And how can any one be certain of the exact pathological condition he is about to attempt to relieve? Is the carious bone in the roof of the tympanic cavity or on its inner wall? Supposing that by the delicate use of a

probe we ascertain its site, should we briskly use sharp instruments to remove it in the immediate vicinity of the meninges, the jugular vein, or the trunk of the facial nerve? Do we not know that the bony partitions which separate them from the tympanum are often incomplete? How frequently do the mastoid cells participate in these cases, and should not surgical treatment be rather drawn to them than the tympanic cavity? These are some of the objections that come before my mind at this moment to these operations. Increased knowledge may bring increased confidence, but at present I would confine myself, so far as intratympanic operations for necrosis are concerned, to the removal of sequestra that are loose and easily to be extracted. Thus, we may cautiously remove the ossicles if loose and carious, and any loose fragment of bone which may show itself in the tympanum. In this way considerable portions of the petrous bone have separated and have been removed without mishap. —Mr. Marmaduke Sheild, *The Lancet*, May 28, 1892, p. 1172.

[See also article "On Aural Polypi," by Mr. Marmaduke Sheild, at p. 192 of this volume of the *Retrospect*.]

SYPHILITIC AFFECTIONS.

GONORRHŒA.—The larger number of cases of gonorrhœa will, if left untreated, cure themselves in a few weeks, provided the patient is in good health otherwise, and carries out the instructions given as to mild diet and restricted exercise. This fact, and it *is* a fact, is important, as many practitioners argue that, as they can "cure" patients in a few weeks by the old routine treatment, there is no necessity for them to concern themselves with the more troublesome and expensive improved methods. So far as my experience has taught me, I should feel inclined to say—leave gonorrhœa cases to nature, for the first few weeks at least, or, at most, give them an alkaline diuretic and bland diet, rather than treat them on the lines just indicated. This course I have seen adopted in many thousand of cases with excellent results, local treatment being reserved for the later weeks of such cases as hang fire; and this course I follow at the present time with most of my hospital patients, both at the Western Infirmary and at the Central Dispensary, as being, on the one hand, economical to the hospital, and, on the other, better in the interests of patients who cannot afford the more efficacious, though more expensive, improvements than the routine copaiba capsule and meatal syringe.—Dr. Nicoll, p. 184, *Glasgow Medical Journal*, September, 1892, p. 180.

SYPHILIS—*Treatment by Mercurials.*—The *Centralblatt für die gesammte Therapie*, 1892, No. 1, S. 1, contains a notable paper by Prof. Eduard Lang, in which he also discusses the question of nephrites in luetic subjects. The nephritis in early stages of syphilis can be either an infectious or a syphilo-toxic nephritis; in either case there is a call for an antisyphilitic, often indeed a mercurial treatment. In late syphilis, the nephritis may be of mercurial-toxic origin. Of course the possibility of the nehpritis antedating the syphilis, or being independent of it, must always be considered. From the results of observation it is certain that mercury may give rise to a nephritis. It is important that the dose should be absolutely known, and such preparations as those in which the drug is not kept evenly disseminated through the menstruum should be avoided. Inasmuch as stomatitis may go on to gangrene and formation of scar-tissue and a mercurial enterocolitis may be set up, it is fair to presume that renal degeneration which is beyond repair may follow the administration of mer-

cury, particularly when it is in unusual doses, although even small ones will at times produce untoward results. As the best method he uses *oleum cinereum* in 50 per cent. solution, of which he uses one drop subcutaneously, to be repeated at intervals of five to seven days. In the first week three doses up to one drop are given. Eight to sixteen treatments are necessary for cure.

[*Oleum cinereum* (grey oil), introduced by Lang in 1886, is prepared by rubbing one part of lanolin with considerable chloroform to emulsion, thoroughly triturating the mixture, the chloroform evaporating during the process. While it is fluid two parts of metallic mercury are added, and the trituration continued. As a salve it is diluted with fresh almond or olive oil to the required mercurial percentage.—R. W. W.]—*The American Journal of the Medical Sciences*, May, 1892, p. 576.

VENEREAL ULCERS—*Aristol for.*—Dr. T. Edmund Güntz, in *Memorabilien*, 1891, 2. Heft, S. 65, gives the results of two years' use of this remedy. He employs the powder dusted over the ulcer, and renders the medicament soluble by dropping upon it a small quantity of olive oil from a glass rod, so that it is evenly distributed through the powder and does not form masses, when it is to be covered by a bit of protective. This dressing is to be changed twice daily. Aristol succeeds better with syphilitic ulcerations than with so called chancroids.—*The American Journal of the Medical Sciences*, May, 1892, p. 581.

OBTETSRICS AND GYNÆCOLOGY.

ABORTION—*Asafœtida in.*—Dr. Turazza gives the notes of four cases of habitual abortion treated by means of asafœtida in the form of pills. Normal labour followed in each, although on previous occasions abortion had occurred. The medicine is not recommended in cases in which a definite cause of abortion (such as syphilis, disease of the uterus or annexa, and tuberculosis) exists. The author gives the results of this treatment obtained by Laferta, Ciordano, and Gazzani,—thirty-seven cases in all, with satisfactory results in thirty-three.—*Centralblatt für Gynäkologie*, No. 9, 1892.—*Edinburgh Journal*, June, 1892, p. 1145.

ANÆSTHETICS IN GYNÆCOLOGY.—At the British Gynæcological Society, on June 9, 1892, Dr. Dudley Buxton, in opening a discussion on this subject, said that gynæcological operations were peculiar in many respects. The operation of abdominal section might be of a simple nature, or of an unusual degree of severity, and this must be considered before choosing the anæsthetic. It was well known that abdominal sections were associated with considerable shock, mainly due to the manipulation of the abdominal viscera. This shock was often augmented by loss of blood. Chloroform as an anæsthetic for gynæcologists and obstetricians possessed unquestionable merits. Its portability was a feature in its favour, and no apparatus was required for its use. A placid anæsthesia was induced, which did not promote hemorrhage. Respiration was not interfered with—an advantage in abdominal operations, where violent respiratory movements interfered with the operator. It was said by some to cause less sickness than ether. With regard to hemorrhage, the difference between ether and chloroform was this: the latter did not increase hemorrhage at the time of the operation, but it made it more likely to occur after it was over, when reaction took place. Ether promoted bleeding at the operation, but not afterwards. Chloroform appeared to cause as much sickness as ether,

and it certainly was a powerful heart depressant. It slowed the pulse and also the respiration. Ether was said to produce struggling, pulmonary trouble, nausea, vomiting, and mental distress from the method of administration. Renal complications were said to arise, and brittle arteries might give way. If gas were given first there was no struggling. Bronchitis rarely followed if ether was properly administered, while there was no danger from the slight nephritis that might occur.

Dr. Buxton expressed his conviction that the objections to ether had mainly come into being through careless administration.—*British Medical Journal*, July 2, 1892, p. 19.

BACKWARD DISPLACEMENT OF THE UTERUS AND PROLONGED HEMORRHAGE AFTER DELIVERY AND ABORTION.—In a paper based on an analysis of 3,641 consecutive out-patients at the London Hospital, Dr. Herman shows by figures—That backward displacements of the uterus are more common in parous women than in those who have not had children. That they are more common in those seeking advice soon after delivery or abortion than in those not applying for treatment until long after childbirth or abortion. That they are more frequent among those in whom delivery or abortion has been followed by prolonged hemorrhage than in whom it has not. That prolonged hemorrhage after delivery or abortion is more frequent in cases of backward displacement of the uterus than in cases without such displacements. Therefore that there is a relation between backward displacement of the uterus and prolonged hemorrhage after delivery and abortion. It is shown that these statements apply both to hemorrhage after delivery and to hemorrhage after abortion. —*Transactions of the Obstetrical Society*, vol. 34, part I., p. 14.

CÆSAREAN SECTION IN PLACENTA PRÆVIA, ETC.—In placenta prævia it appears to me that the older resources of the obstetric art, especially the performance of bipolar version, as soon as the cervix will admit two fingers, are so thoroughly effectual that they are not likely to be superseded by anything better. But in a few rare cases of accidental hemorrhage the case is different. With an undilatable cervix and a severe hemorrhage, not arrested by puncture of the membranes, the outlook is so unpromising that the alternative of Cæsarean section may well be entertained, and has actually been practised with success.—Dr. Galabin, *British Medical Journal*, August 6, 1892, p. 291.

CANCER OF THE BREAST—*Method of Removal.*—In all cases there should be free removal of the skin, especially over the tumour, very free indeed if the skin is actually the seat of the disease; complete removal of the breast, bearing in mind its great extent; removal of the pectoral fascia coextensive with the breast and right on to the sternum, along with a thin layer of the muscle behind the tumour and the main part of the breast; removal of the fascia over the serratus magnus in the axillary region and of all glands and fat from the axilla, not by pulling out the glands, but by clean dissection; further, if the tumour is adherent to the pectoral muscle, removal of large strips of that muscle. This may seem a very extensive operation where the tumour is very small, but the object of the operation is not to remove the tumour but to rid the patient of her disease, and that can only be done by removing, as far as possible, all the probable seats of recurrence. The operation is fortunately one in which, if performed aseptically, the question of mortality does not come into play, and the results of this very free removal seem to me to promise well. Although I have been brought up to deal more freely with these cases than used to be the fashion, my impression is that there has been

an improvement as regards recurrences since I began to act closely in accordance with recent pathological researches. During the last two years I have operated in this free manner in over twenty cases, and, so far as I am aware—and I know about the majority of the cases—recurrence has only as yet taken place in three instances, in one case being intrathoracic, and in another in the form of a small nodule in the skin over the angle of the scapula, three inches and a quarter away from the edge of my former incision in the skin—a striking instance of the necessity of free removal of the skin once it has become involved in the disease.—Mr. W. Watson Cheyne, *The Lancet*, August 13, 1892, p. 358.

CANCER OF UTERUS—*Causes of Recurrence after Removal.*—Winter (*Centralblatt für Gynäkologie*, 1892, No. 11) states as the result of extended observations that if cancer is limited to the uterus, so far as can be ascertained at the time of operation, it is seldom that the lymph-glands are already affected. Metastasis in the viscera are rare, since he noted only seven cases out of 123. Local recurrence is most common. Of 230 women whose uteri had been removed for cancer, this was observed in 50 per cent. After total extirpation for commencing epithelioma of the cervix, extensive infiltration of the perimetric tissues appears due, not to the growth of diseased nodules which have been left behind originally, but to infection of healthy tissues during the operation. The following arguments are advanced in favour of this theory: (1) Cancer of the cervix, if not touched, is accompanied by only moderate thickening of the parametria, especially posteriorly, while after operation the induration becomes more marked and general; (2) recurrence from non-removal of all the diseased tissue occurs in the cicatrix and extends outward, while recurrence from the infection during operation may result in extensive pelvic induration while the cicatrix remains unaffected; (3) the latter occur so quickly and universally that they cannot be attributed to the growth of isolated foci; (4) they are observed only in those cases in which cancerous matter has been allowed to come in contact with a healthy wounded surface; (5) those forms of cancer which develop in the cervical or corporeal mucous membrane allow a better prognosis than does extensive disease of the portio, because in the former case infection can be prevented by care during the operation, the uterine cavity being previously disinfected and the os sutured; in the latter, the use of the sharp spoon, followed by the Paquelin cautery, will do much to lessen the danger.—*The American Journal of the Medical Sciences*, July, 1892, p. 115.

CANCER OF UTERUS—*Results of Vaginal Hysterectomy for.*—Terrier and Hartmann (*Rev. de Chir.*, April, 1892) publish a series of eighteen cases of vaginal hysterectomy performed for the removal of cancer of the uterus, and also give the results of recent inquiries concerning eighteen other cases of a like kind, which were tabulated and published in 1888. In each series the immediate mortality from the operation was 2.35 per cent. In the second and later series death was due in one case to shock, and in two cases to peritonitis. In one case the patient died on the fourteenth day in consequence of phlebitis of the main venous trunk of the lower limb. Of the patients referred to in the first series of cases who recovered from the direct effects of hysterectomy, two were living and in good health after long intervals—one after six years and four months, the other after five years and four months from the date of operation. In eight cases included in the earlier list recurrence occurred after intervals varying from six weeks to two years. In five of the second series of cases the patients when last seen were living after intervals vary-

ing from three years and five months to eight months. Of these five patients, however, two presented indications of return of the disease in the vaginal cicatrix. The authors point out that vaginal hysterectomy is a serious measure, as these tables show a death-rate from the operation itself of about twenty-three per cent. The results of this treatment are, it is held, not more serious when it is performed as a palliative step than when it has for its object complete removal of the deceased structures. It is indicated, therefore, whenever the cancerous uterus is mobile, although the vaginal *cul-de-sac* may be involved in the disease. Recurrence, which has been noted in about seventy per cent of the cases, although unusually speedy, may in some cases be postponed for a long interval (from seventeen months to two years, or even longer). These tables show that thirty per cent. of the patients who had undergone vaginal hysterectomy are apparently cured by this operation, even in cases in which the malignant nature of the disease has been proved by both clinical and histological observation.—Epitome of the *British Medical Journal*, July 9, 1892, p. 6.

CHOREA COMPLICATING PREGNANCY.—In the Transactions of the Obstetrical Society of London, vol. xxxiii., Dr. McCann contributes an elaborate paper upon chorea in pregnancy and after labour. He divides the disease into three forms—true chorea of pregnancy, hysterical, and mixed. In true chorea, quickening causes an exacerbation, as do fœtal movements, and peripheral stimuli, such as suckling. Chorea most often occurs in pregnant patients between the ages of eighteen and thirty. It is most common in the first pregnancy, and during the third or fourth month. It is most usually traced to a previous attack of chorea, rheumatic fever, or hereditary rheumatic history. Epilepsy, nervous disorders and fright, mental emotion, anæmia, are also causative factors. A pregnant patient will not have chorea, however, unless she has a hereditary predisposition to nervous excitability, a disordered condition of the blood, and some exciting cause; fœtal movements aggravate the disease. In severe cases, the motor cortex, mental centres, and spinal cord are involved. The majority of mothers recover, some become maniacal, others die in delirium or paralysis. If labour occurs at term, the risk to the child is not increased. Choreic movements rarely cease after delivery, although less severe. If chorea has occurred in childhood it is almost sure to return during pregnancy. The younger the patient is during the first pregnancy, the more liable the chorea to return. So far as treatment is concerned, the patient should be put as absolutely at rest, mentally and physically, as possible. Change of scene and surroundings is often useful. Iron, arsenic, and nourishing food should be freely given. The bowels should act regularly, and diaphoretics should be used if the skin is dry. To procure sleep, chloral, in doses of from thirty to forty grains, is recommended. Chloroform may be employed in very violent cases. To avoid abrasions, the patient should sleep in a padded bed; the mattress laid upon the floor, the walls of the room being also padded. Strychnine has been used successfully, pushed until symptoms of poisoning began. Anti-rheumatic treatment is sometimes useful. At labour, the patient should be controlled, and hemorrhage should be avoided. Especial care should be taken in antiseptic precautions. Labour should be induced where the mother shows signs of exhaustion, where mania or serious mental affection exists, and in cases of heart complications. The decision to induce labour rests upon an accurate diagnosis, as hysterical chorea is common, and may easily deceive.—*The American Journal of the Medical Sciences* June, 1892, p. 721.

CHORION—*The Diagnosis of Cystic Degeneration of the.*—It must be borne in mind that this degeneration or growth of the chorion "very likely always" begins during the earliest stage of the ovum when the chorion is first formed. Another point worth bearing in mind and not generally known is that the little vesicles in some cases burrow into the uterine wall and even through them, destroying the musculature of the uterus and causing fatal hemorrhage into the peritoneal cavity. The chief points to rely upon in the diagnosis are :—(1) The rapid growth of the uterus—too rapid for ordinary pregnancy. (2) The vaginal hemorrhage which usually begins six or eight weeks after the beginning of pregnancy. (3) The discharge is sometimes more or less watery or sero-sanguinolent. (4) Sometimes vesicles are passed; this, however, is rare. (5) A careful bimanual examination will show that the tumour which exists is the uterus, for it is *continuous with the cervix and the two move together.*—Dr. Samuel L. Weber, Chicago, *American Journal of Obstetrics*, July, 1892, p. 23.

COCCYGODYNIA.—Olshausen (*Zeitschr. f. Geburtsh, u. Gynäk.*, xxii., 2 p. 427, 1891) states that he has found coccygodynia very frequent in its milder forms. It is especially common in retroversion and severe pelvic congestion during the catamenia. In all severe cases the cause is most probably traumatic. The damage is usually received during labour, but often under other circumstances. In these severe cases nothing is of avail excepting "circumcision," or excision of the coccyx. By "circumcision," Olshausen means subcutaneous incision of the soft parts adjacent to the coccyx. The patient is placed on the right side, a tenotomy knife is then thrust into the integuments behind the middle line of the coccyx. The knife is pushed in all directions between the bone and the integuments. The left forefinger is kept in the rectum, lest the bowel be injured. The tissues at the extreme end of the coccyx must in every case be divided subcutaneously, great care being taken not to wound surrounding structures. Should the pain recur after this procedure the coccyx must be excised. The deep wound left after removal of the bone will require plugging. Olshausen cured a very obstinate case of coccygodynia in this manner. —Epitome of the *British Medical Journal*, April 2, 1892, p. 54.

ENDOMETRITIS—*The Diagnosis of.*—If there is any doubt about the existence of endometritis the question is easily settled thus :—Leave a tampon of cotton-wool pressed against the uterus for twenty-four hours. This should be damped with glycerine of tannin solution (twenty to twenty-five per cent.). At the end of that time, if the uterus is healthy a small clot of pure mucus will be found on the tampon. If unhealthy the tampon will be covered with pus.—Schultze, *British Medical Journal*, October 29, 1892, p. 71.

ENDOMETRITIS.—*Treatment of.*—No applications of caustic really cure these cases, if of long standing. They are uncertain in their action and dangerous. The only way to cure the disease is to dilate and curette. This should be followed by irrigation of the uterine cavity and packing the cavity with iodoform gauze, just as any other discharging raw cavity would be treated.—Dr. W. R. Pryor, *American Journal of Obstetrics*, New York, July, 1892, p. 26.

HABITUAL ABORTION—*Asafœtida for.*—Asafœtida has been recently recommended in cases of habitual abortion. Dr. Turazzo gives it in pills containing a grain and a half as soon as it becomes clear that a new pregnancy has commenced. At first only two pills are prescribed, but later on the number is gradually increased to ten daily. The treatment is con-

tinued until the labour is over, and then the daily dose is gradually diminished. By this method cases where as many as five successive abortions had occurred have been successfully treated, and where in one instance a miscarriage appeared to be imminent during the seventh month it was averted, and the patient was delivered at full term.—*The Lancet*, August 6, 1892, p. 320.

HYDATIDIFORM MOLE.—Dr. G. A. Craigin bases the following conclusions upon a study of twenty-five cases of this disorder:—(1) Primiparæ are not rarely affected; and the average age is younger than generally estimated. (2) There may be present any of the ordinary changes of breast, labia, etc., found in normal pregnancy. (3) There is medico-legal importance in the following: *a*, origin from impregnated ovum only; *b*, the placenta once formed is never the seat of this myxomatous change; *c*, the mole may be carried beyond term or after a living child; *d*, the appearances after delivery of a mole may be indistinguishable from those after child-birth. (4) Reflex symptoms of nausea and vomiting common to pregnancy, so far from being absent or rare, are rather frequent and as a rule are early, severe, progressive. (5) There may be œdema without albuminuria. Schul finds that it appears earlier than in normal pregnancy. (6) Uræmia may be a complication, and, with convulsions, is amenable to the same treatment as in pregnacy. (7) Too much stress has been laid on the so-called characteristic discharge of thin watery blood, with occasional cysts. For while in the cases cited the flow may not have been pure blood, it was so nearly that in a large proportion of cases no distinction was noted. Therefore, any vaginal discharge, watery or bloody, slight or considerable in amount, intermittent or constant, and without cysts, is perfectly consistent with hydatidiform mole. (8) Sudden hemorrhage, sufficient to cause grave general symptoms, is frequent; as also exhausting intermittent flow.—*Boston Medical and Surgical Journal*, September 8, 1892, p. 234.

MAMMARY ABSCESS—*Treatment of*.—Hache (*Rev. de Chir.*, 12e année, No. 3) recommends the following as a means to procure the rapid healing of these abscesses:—1. After antiseptic precautions the most important procedure, as in all other abscess cavities, is the procuring of perfect drainage. 2. The compression, uniform and firm, of the gland is the best means to accomplish this end, the position or declivity of the incision being of little importance. 3. To produce this uniform and sufficient pressure concentric compression directly of the gland should be joined to the classic method of pressure against the thorax. 4. Drainage-tubes should be avoided as much as possible, as they render the compression painful and retard the healing. 5. Where the abscess is superficial and only covered by a thin layer of tissue, it should be incised in this point. The thinness of the walls renders the use of drainage-tubes unnecessary. He reports four cases in which this method of treatment by compression produced rapid cures, with restoration of the secretive function.—*The American Journal of the Medical Sciences*, July, 1892, p. 96.

MASTITIS, TUBERCULOUS.—The following is taken from one of the Hunterian Lectures "On Certain Diseases of the Breast": —This specific form of chronic inflammation of the breast has, up to the last few years, been very little understood. Many of the cases of chronic suppurative mastitis are with difficulty to be separated except by microscopical investigation. The disease, however, is not nearly so rare as it is supposed to be. The first surgeon to draw attention to this disease was Sir Astley Cooper, who, in his *Illustrations of Diseases of the Breast*, has a chapter

on the "Scrofulous Tumour." He says "he had seen such swellings, single or multiple, in the breasts of women with enlarged glands which were very indolent and varied with the health of the individual." Velpeau described "lymphatic or tuberculous tumours," which he thought must be of extreme rarity and could be met with only in woman with tubercules in other organs. Virchow and Cornil and Ranvier have doubted the existance of a breast tuberculosis, but Cornil later has recognised it as an established fact. Billroth, in the *Deutsche Chirurgie*, quotes the case, which he saw when he was assistant in Langenbeck's clinic, of a blond girl with different scrofulous affections. She had in one breast many nodules of the size of a hazelnut, which were proved to contain yellow cheesy pus, and he pronounced it to be "cheesy chronic lobular mastitis." Since this date from other cases he recognises a tuberculous mastitis. In the last few years there have been many communications on the subject by Ohnacher, Le Dentu, Klotz, and particularly by Dubar. It is to the last in his thesis that we are indebted considerably for a knowledge of this disease.

Causation.—Many of the cases—about half—occur in relation with other tuberculous lesions, especially pulmonary. If the breast affection is primary, they have as a rule some strong hereditary taint. Of eight cases which have come under my notice, none curiously had any very evident lesion elsewhere; one case had suspicious signs at the apices, and another had had a pleurisy eight years before. In six there was a strong family history of tubercle, in another the woman's husband had died of phthisis, and in the other there was no history. Of more direct causes we have: (1) Injury; one case arose from a squeeze received eighteen months before, and another was referred to a blow six weeks before. (2) Many—Mandry, Park, Dubar, and Delbet—assert that pregnancy and lactation are the chief exciting causes. In cases described by Orthmann and Habermass the disease developed during lactation, and seemed to progress along the ducts. An old quiescent induration may with a fresh lactation become active and show signs of its tuberculous nature. (3) Cold is said sometimes to be a cause. The disease in the majority of instances affects women. I have not met with one in a man, nor in English history is there one recorded. Out or thirty-seven cases collected by Delbet, only two were in men. The disease may exist for some considerable time without troubling its victim, so that advice is sought late. Its presence may be reckoned by months, and in some instances years.

Forms of the Disease.—Velpeau, in his description of tuberculous tumours, mentions first disseminated tubercles, of which he gives the following account: They are multiple tumours, from the size of a hazelnut to a walnut, and seemingly made up of so many lobules and fibrocellular tissue between. Almost all the lobules (which are often softened in the centre), are infiltrated or filled with tuberculous or caseous matter mixed here and there with little foci of greyish, serous, or flocculent pus. In one case the disease was of four years' duration, and had, the patient said, been induced by a blow from the elbow. One of the axillary glands, which had become as large as a walnut, was covered with tuberculous or cheesy lumps. Although the lungs appeared sound, and there was no glandular enlargement elsewhere, the patient had always been delicate and of marked tuberculous diathesis. He then describes a form called the "purulent lymphatic tumour," which is usually single, lumpy, and irregular in shape, usually of indolent growth, and may occur in relation with a blow; they have caseous or tuberculous pus in them. These descriptions of Velpeau's, made years ago, are certainly very accurate. Most observers seem to

agree that the lesions are found under two different forms, the confluent and the disseminated. The confluent is the more frequent of the two. It presents the form of a single, ill-defined, bossy tumour, moving with the breast on the chest wall. Its edge has not the marked boundary as occurs in most cases of simple chronic mastitis, and it very often sends off processes into the surrounding tissue as a carcinoma does. The skin may or may not be adherent; if the latter, the tissues beneath have become infiltrated, and thus the skin is implicated. The nipple will be retracted where the inflammatory swelling is central. The disseminated form is rarer. In this variety we get scattered nodules, between which the tissue may or may not be sound. These nodules tend to run together and become the confluent form. Ohnacher considered that this disseminated form was secondary to the confluent form, and due to new foci springing up around the primary centre. G. Mandry recognises two forms of primary tubercle: (1) Very chronic—a low inflammation with induration, caseation, softening, etc.; abscesses with retraction of nipple, and enlarged axillary glands. This agrees with the confluent form of most observers. (2) The intramammary cold abscess, generally associated with tubercle elsewhere. It is a tense elastic swelling, full of thin curdy pus. Miliary tubercle of the breast up to the present has not been recorded. The commonest clinical form, then, of breast tubercle is the single confluent tumour. The rate of increase of such growth is very variable, in some very chronic, in a few cases running somewhat an acute course. Before very long we find—and it is the commonest sequel—that destructive changes ensue in its centre, giving rise to a softened patch and the development of curdy pus. Ultimately the skin gives way, and this caseous pus is discharged from a fistulous opening. The sinus or sinuses thus formed will be found to lead down into a cavity, or intercommunicating cavities, which present ragged walls. No case has as yet been recorded where calcification has taken place in lieu of the above destruction. A general fibroid change probably results in a few cases. All the cases I have seen belong to the confluent form. According to Delbet, the outer segment of the breast is more often affected (in ten out of eighteen cases), and in my small number of observations there is about the same proportion. The axillary glands become involved in the majority of cases, apparently with no relation to the situation of the diseased focus in the breast. There may be felt a definite thickened cord stretching along the edge of the pectoral muscle to the axilla. When the glands are affected the disease very often seems to progress in them more rapidly than in the breast, leading to softening and breaking down. In some cases the breast is secondarily affected to the axillary lymphatics, and so the history should carefully ascertain the part first involved.

Symptoms.—The onset of the disease is generally insidious, and so not noticed; its discovery often is purely accidental. Sir Astley Cooper, in the cases that he saw, remarks on their indolence developing without pain and scarcely any tenderness on pressure. Delbet says there is little or no pain. The cases that I have noted do not bear out this statement, for in all there has been some complaint of pain. In one case it was described as stabbing, in five as being present on and off, and in another as passing to the shoulder. There may or may not be localised tenderness; if present this is probable in relation with the associated mastitis. In four cases this was a marked symptom. Loss of flesh may occur if the breast is discharging much, and especially if there are other lesions present. Then we may have other symptoms indicative of tubercle, cough, hæmoptysis, etc.

Diagnosis.—In cases of primary tuberculous disease of the breast, with the skin sound, the diagnosis may be very difficult. Take care to exclude other cases giving rise to sinuses, etc., as submammary abscess due to rib necrosis or to pointing empyema. Those cases where there are one or more fistulous openings discharging a curdy pus, and perhaps a history of tubercle in family, or showing other lesions, give no difficulty. The diagnosis has to be made from:

1. *Chronic Suppurative Mastitis.*—This is not at all easy where the case is a primary one. In the tubercle we should not expect such a definite outline, and when there is an opening the pus should be curdy, not thick and yellow. Astley Cooper gave as a point of distinction the absence of tenderness, but in four of the cases that have come under my notice this has been rather a prominent symptom. Pain when suppuration is taking place would be more marked in chronic mastitis. Enlargement of the axillary glands is a much more constant feature in tubercle, and such, when present, are not so systematically tender as they are in cases of simple inflammation. Both of them have relation to lactation, so this is not of great assistance, but this unaccompanied by other signs savours of mastitis.

2. *Chronic Interstitial Mastitis.*—In rare cases the tuberculous lesion may stimulate this, as in the case quoted before. Here the breast was uniformly enlarged without any nodulation, and with a well-defined edge —in fact, characteristically "cake-like." But there were points which enabled the diagnosis of tubercle to be made, in that there was slight adhesion of the skin with localised tenderness. The former is not likely to be present in chronic diffuse insterstitial mastitis unless there had been some former inflammatory trouble in the breast; and the latter symptom in chronic mastitis, if a feature at all, would only be present perhaps during menstruation.

3. *From Carcinoma.*—In some cases it is so difficult that breasts have been removed on the above diagnosis. In the case of L. B. (Sir William MacCormac), the breast, the seat of an old abscess, became enlarged in the space of a few weeks, giving an isolated swelling, skin adherent with some pain, but no enlarged glands. Its acute development suggested cancer, and accordingly the breast was amputated; but to the naked eye on section it was evidently a chronic suppurative mastitis, and on histological investigation it proved to be tubercle.

Prognosis.—When the lesion is secondary to a primary one elsewhere, the prognosis is here not affected, as, owing to the chronicity of the breast disease, the patient's death is usually brought about by the primary lesion. When the disease is primary, it tends to be progressive locally, to involve axillary glands, etc., or to have lung lesions. Whether it is ever succeeded, if left alone, by acute miliary tubercle, there is no evidence; such a thing has not been recorded. Judging from analogy of what happens in other organs, such a sequel is very unlikely. Of six cases (quoted by Delbet) seen after operation, two remained under observation for a long time without any recurrence, one recurred after nine months, and another after three years; two died of pulmonary phthisis. Owing to the difficulty of tracing hospital patients, the after-history of my quoted cases is almost a blank. One recurred slightly in the scar after a few months, but she has now gone for nearly a year without any recurrence. Should the patient be suckling, this should immediately be stopped, to prevent infection of the infant. This pathological lesion has its analogue in the tuberculous mammitis of cows. Koch writes it is certain that the milk of tuberculous cows may give rise to infection, and is of opinion that, unless the udder is

diseased, the milk will contain no bacilli, and is not infective. In the cases that have come under my notice, cultivations have not been made, and I have no sufficient evidence to offer as to the effect of the milk on the health of the offspring. Only two of my eight cases had children, and in both they were perfectly healthy. Dr. Hebb, however, quotes a case where a phthisical woman with disease of the breast had eight children, five of whom are said to have died of tuberculosis, but we cannot draw any definite conclusion from this.

Treatment.—Sir A. Cooper says that it is "not justifiable to remove," but then he does not appear to have seen a primary case. Should the disease of the breast be in relation with tuberculous disease elsewhere, I do not think we need consider that there is any necessity to extirpate the gland, except where the local inconvenience renders some interference desirable. If the disease is primary, we should undoubtedly deal with it as we should with any malignant growth—namely, extirpate the gland. If the axillary lymphatics are affected, then they should be removed at the same time.—Mr. H. B. Robinson, *British Medical Journal*, June 11, 1892, p. 1237.

[See also article by Mr. H. B. Robinson, "On Simple Chronic Mastitis," at p. 202 of this volume of the *Retrospect*.]

Painful Menstruation—*Treatment of.*—In those cases in which there is pain with sickness, no matter whether the disturbance is central or in the organs themselves, I find it advantageous to administer a large dose of bromide (especially the three, pot., sod., and ammon.) every night at bedtime for one week midway between the periods, and five grains of antipyrin every hour (or a less dose, according to the age and condition of the patient), beginning as soon as the pain or discomfort which augurs the menstrual process is experienced, and continued, if necessary, until six doses are taken. In the majority of cases phenazonum (antipyrin) tends to lessen the amount of the menstrual discharge; and this drug is seldom of benefit in those cases in which there is prior to its administration a scanty flow. When the discharge is scanty, and especially when the pain appears to be due to vascular spasm, the patient should be recommended to take each night for six nights before an expected period a hot bath, and thereafter a mixture containing the three bromides, the dose varying from ten to twenty grs. of each. If the pain appears to be due to derangement of the gastro-intestinal tract, a mixture containing either chloride of calcium or hypophosphite of lime should be administered during the intermenstrual epoch, and five grs. of phenazonum every hour (until thirty grs. are taken) as soon as the patient begins to experience the pain usually complained of during menstruation. In a few cases good results are obtained by dilating the cervix uteri, but this treatment should not be adopted, especially in the case of young unmarried women, until other remedies have been well tried for at least a year or eighteen months. My opinion is that the good results obtained by dilatation are decidedly over-rated, and that, although marked relief may be noted during the period immediately succeeding the dilatation, permanent benefit results in a very small percentage of the cases operated upon. I am frequently consulted by patients who have been subjected to dilatation and incision of the cervix, and in the majority of these cases the patients allege that their distress has increased since the operation. Finally, let me say that we cannot too strongly condemn the use of opium or of hot alcoholic drinks in cases of dysmenorrhœa. The latter is a common household remedy, and although it relieves at first, it tends in the long run to aggravate the disease, and besides, it is apt to

engender a habit which, once well established, cannot readily be interrupted.—Dr. James Oliver, *Edinburgh Journal*, July, 1892, p. 56.

PERITONITIS, PUERPERAL—*Abdominal Section for.*—The treatment of peritonitis in puerperal septicæmia by abdominal section and drainage of the peritoneal cavity has scarcely, I think, yet justified the hopes which were raised at first, or established itself as a procedure likely to have a wide application. Where peritonitis is due to a pre-existing disease of the tubes, it is, indeed, the most rational treatment, and offers the hope of success. But where the septic process begins in the uterus or vagina and extends in all directions, other tissues besides the peritoneum may be fatally affected. Moreover, we have then to reckon with the increased virulence which microbes appear to acquire in the puerperal woman. And the experience of abdominal section apart from pregnancy appears to show that, if any specially septic contagion is conveyed, even drainage of the peritoneal cavity will not always insure safety; and that, moreover, in such cases, even a plastic peritonitis may suffice to kill without any formation of pus. Even if the whole puerperal uterus be removed by hysterectomy, although the primary site of septic absorption is removed, there is the probability that septic foci will have spread to, and will be left behind in, the broad ligaments. This operation has, indeed, been tried in puerperal septicæmia, but not, I believe, with a favourable result; and one can hardly suppose that patients suffering from a fatal form of this disease would be able to withstand the shock of hysterectomy.—Dr. Galabin, *British Medical Journal*, August 6, 1892, p. 291.

PERITONITIS, RECURRENT PELVIC—*Treatment by Abdominal Section.*—[Dr. Cullingworth publishes a series of six cases of recurrent pelvic peritonitis successfully treated by abdominal section. The following are Dr. Cullingworth's remarks upon the subject:]—Recurrent pelvic peritonitis in the female is, in the immense majority of cases, an indication of the presence of pus either in the Fallopian tube or in the ovary, or in both. It therefore almost invariably calls for surgical treatment, for the anatomical position of the tube is such that pus once poured out cannot drain away as it can from most of, if not all, the other mucous surfaces of the body, whilst in the case of the ovary the imprisonment of the pus is, if possible, even more absolute. They were all admitted for acute pelvic inflammation, and at least four of the patients were extremely ill. The history showed that in all but one of the cases there had been previous attacks, proving the presence of some chronic source of irritation. How do the contents of an ovarian cyst become infected? What determines their suppuration? There seems good reason for believing that the most common channel of infection is the Fallopian tube. Given cystic disease of the ovary and suppurative inflammation of the Fallopian tube (whether septic or gonorrhœal), there is strong evidence in favour of the view that the process of suppuration may be set up in the contents of the ovarian cyst by the passage of infective micro-organisms from the diseased tube. But this is not the only source of infection. For instance, in one case it is more than probable that the suppurative process in the ovaries was due to contamination from the vermiform appendix, which was found in a condition of the most acute inflammation, and so adherent to the wall of one of the cysts as to be apparently embedded in it. In two of the cases fæces made their appearance in the discharges from the abdominal wound during convalescence; in one case on a single occasion only, in the other during thirty successive days. The liability for temporary fæcal fistulæ to occur after abdominal operations where the intestines have been

seriously involved in the adhesions is well known. It is due to the ease with which the intestine gives way when its wall is rendered soft and friable by inflammation and its external support is lost by the removal of parts to which it has been adherent. Under such circumstances the strain produced by a fit of laughter or of coughing or the act of vomiting is quite enough to burst the bowel and permit the escape of flatus and fæces. Fortunately it is an exceedingly rare event for a fistula so formed not to heal spontaneously. It must not be supposed that the fact of there having been an escape of fæces in two out of the six cases is any real indication of the proportion of cases in which this accident ordinarily occurs, for these six cases were all of more than average difficulty and severity, and the intestines in most of them participated to a more than usually serious extent in the general pelvic inflammation. One important lesson brought home to us by these histories is the wonderful tolerance of the peritoneum. The peritoneum may be soiled by the spilling of fetid pus, and even by the passage of fæces over it for many days together without injury, provided ample means of exit exist by which the offensive material can be quickly got rid of by the intra-abdominal pressure. In every one of the six cases purulent material escaped more or less freely into the peritoneal cavity, owing to rupture of the thinner and more densely adherent portions of the cyst wall during the process of separation, and in no instance did any constitutional harm result. Again, in one case fæces passed over the peritoneal surface for thirty successive days without any perceptible ill effects. It may be said, in reference to the bursting of the cysts, that it was the subsequent irrigation that prevented injury. I am a profound believer in the value of flushing of the peritoneum, but I cannot think that it is effectual to the extent of washing the surface absolutely clean. It is, in my opinion, sound practice to ensure free subsequent drainage for at least some hours whenever pus has escaped, so that any portion that may remain after the flushing and sponging may find an easy way out. The powerful force of intra-abdominal pressure is then usually quite equal to the task of effecting its expulsion. For the same reason free drainage should always be provided when there is the least ground for fearing the escape of the intestinal contents. If they are thus provided with a means of exit they will avail themselves of it without delay, and the danger of peritonitis will be avoided. Another lesson taught by these and similar cases is that the method that was here adopted of removing the cysts entirely is infinitely to be preferred to that of merely emptying and draining the abscess cavity and then stitching the cyst wall to the edges of the abdominal incision. The presence of the most formidable adhesions ought not to deter the operator from attempting the more complete operation.—*The Lancet*, July 9, 1892, p. 89.

PLACENTA PRÆVIA.—There is probably no condition that has given greater anxiety or has been the subject of more varied discussion than the attachment of the placenta in the lower segment of the uterus. When we consider the danger to the individual arising from the progress of such a condition, it seems unwise to permit her to be subjected to it, if there be any possible means to avoid it. If it has been demonstrated that the placenta occupies the position known as centralis, what possible advantage can be urged in permitting the patient to go on almost to full term, with a possibility of recurring hemorrhages, any one of which may prove fatal before a physician can be secured. In such cases it is very rare for a child to be delivered alive, and consequently, with the slight possibility of its being saved, the life of the woman should not be imperilled. The better

plan of treatment would seem to be that urged by Wyder. Secure dilatation of the uterus sufficient to permit of version by the Braxton-Hicks method, then drag the limbs into the cervix ; these will act as a natural tampon and prevent further hemorrhage.—Dr. E. E. Montgomery, Philadelphia, *Medical News*, June 11, 1892, p. 654.

Post-Partum Hemorrhage—*Treatment of.*—The treatment of post-partum hemorrhage has been improved of late years by the extended use of hot water, and more recently by the introduction of the plan of plugging the uterus. For the treatment of the resulting anæmia in severe cases, I think a hopeful prospect is afforded by the success of the plan of intravenous injection of large quantities of hot water. The novelty here consists in the quantity of fluid used—six pints or more instead of one or two pints only, which formerly it was the practice to inject in post-partum or other forms of hemorrhage. In the practice of Guy's Hospital this treatment has been adopted, not only for hemorrhage but for other conditions of shock and collapse. It has thus been shown that the operation is free from the risks attendant upon the transfusion of blood, and that, even apart from any previous emptiness of the vessels, it is a powerful cardiac stimulant. I did not come into contact with these cases personally, but I have heard the story of a man who had cut his throat in delirium tremens and was brought in pulseless and apparently lifeless. Up to four pints of saline solution he showed no signs of life ; but before six pints had been injected he not only came to life, but resumed his delirium tremens sufficiently to fight with the operators. A treatment which can produce such results seems tempting for some cases of post-partum hemorrhage, provided always that the hemorrhage itself is arrested ; otherwise the saline fluid would doubtless only wash the rest of the blood more effectually out of the vessels.—Dr. Galabin, *British Medical Journal*, Aug. 6, 1892, p. 291.

Salpingitis—*Dilatation and Drainage of the Uterus in.*—Dr. Strong reports four cases of salpingitis in which he treated the condition by means of dilatation of the cervical canal, scraping away the mucous membrane of the uterus, and packing the uterine cavity with iodoform gauze. The gauze was removed every three days for ten days, and the patient kept in bed for a week. In one case he considers that the treatment resulted in cure, in two it gave complete relief, and in one it was a failure. All cases of salpingitis are not suitable for this operation ; mobility of the tubes and patency of the uterine end of the canal are essential qualifications for successful interference of this kind. The time of election for the operation is one week after the menstrual flow.—*Boston Medical and Surgical Journal*, March 17, 1892 ; *Edinburgh Journal*, June, 1892, p. 1147.

INDEX TO VOL. CVI.

PAGE

Abbe, Dr. Robert, on intestinal anastomosis and suturing . . 154
Abdominal section for puerperal peritonitis, Dr. Galabin on . . 314
" tumours from retention, Mr. Jonathan Hutchinson on . 73
Abortion, asafœtida in, Dr. Turazza on 304
" " Dr. Wm. Duncan on the treatment of . . 215
" habitual, Dr. Turazzo on asafœtida for 308
Abscess, cerebellar, successfully treated by operation, Mr. H. P. Dean on a case of 199
" mammary, Dr. Hache on treatment of 309
" psoas, radical cure of, Mr. R. W. Murray . . . 142
Abscesses in tuberculous joint disease, Mr. W. Watson Cheyne . 287
" spinal, treatment of, Mr. F. Treves 88
Adenoid vegetations, Dr. Dessar 295
Agminate glands of the intestine, enlargement of, etc., Drs. Smith & Parsons 258
Akromegalia and Akromikria, Stembo 226
"Aleuronat," a vegetable albumen for diabetes, Dr. Wilhelm Ebstein 22
Alopecia areata, Dr. L. Duncan Bulkley 289
" " Dr. P. A. Morrow on 290
Anæmia, acute saline, injections in, Dr. P. T. Neustube . . . 226
" hemorrhages into the labyrinth, Dr. J. Habermann on . 298
" pernicious transfusion of blood in, Dr. Brackenridge on . 235
Anæsthesia in lesions of the lower spinal cord, Dr. M. Allen Starr . 31
" in spinal cord lesions, hysterical paralysis and peripheral neuritis, Dr. M. Allen Starr 242
" in disease of the spinal cord, Dr. M. Allen Starr . . 31
Anæsthetics in gynæcology, Dr. Dudley Buxton 304
Aneurism, treatment by extirpation, Dr. Kübler 248
Angina pectoris of hysterical origin, Prof. Charcot 248
Antimony in skin disease, Drs. Jamieson and Douglas . . . 290
Antipyretic treatment in fever, Dr. Graham Steell 227
Anus, imperforate, Mr. Harrison Cripps 162
Aortic disease, digitalis in, Dr. G. W. Balfour 249
Appendicitis, Dr. C. B. Ball 70
Aristol for venereal ulcers, Dr. T. Edmund Güntz on . . . 304
Arsdale, Dr. W. W. Van, on streptococcus osteomyelitis in children 87
Arsenic in cardiac pain, Dr. S. C. Chew 250
" " lymphosarcoma, Dr. E. Romberg 233
Arterio-sclerosis, Dr. Archibald Church 39
Arthrectomy and excision in the treatment of tuberculous joint, Mr. W. Watson Cheyne 135
" for disease of the knee-joint, Mr. W. Watson Cheyne . 279
Asafœtida for habitual abortion, Dr. Turazzo on 308
" in abortion, Turazza 304
Asthma, treatment of, Dieulafoy 252
Atheromatous disease of the arteries, Dr. McCrorie on . . . 249
Atkinson, Mr. Edward, on acute intestinal obstruction; operation by short circuit 156
Atthill, Dr. Lombe, on the treatment of fungoid and other diseases of the lining membrane of the uterus 218
Aural *polypi, Mr. Marmaduke* Sheild on 296

PAGE
Ball, Dr. C. B., on the limits of medicine and surgery in appendicitis 70
Barwell, Mr. Richard, on a method better than suspension of applying a plaster jacket 91
Baskett, Mr. B., on treatment of a case of chronic pleurisy by continuous drainage 144
Bassette, Dr. M. Imogene, on the paralyses of children which occur during and after infectious diseases 37
Bassini's method for radical cure of inguinal hernia . . . 262
Belfield, Dr. William T., on the use of iodine trichloride in surgery 85
Bell's palsy, secondary contraction in, Dr. W. Evans on . . . 242
Bennett, Mr. W. H., on the use of taxis in strangulated hernia . 158
Biliary ducts, catheterisation of, Drs. Terrier and Dally . . . 258
Biss, Dr. Cecil Y., and Mr. A. Pearce Gould on the causes and treatment of intussusception 152
Bonuzzi's method of treatment of tabes dorsalis 247
Boric acid preparation for otitis media, Dr. Max Janicke on a new . 300
Bowen, Dr. John T., on the destruction of hair by electrolysis . 177
Brady, Mr. A. J., on foreign bodies in the pharynx and larynx . 145
Braithwaite, Dr. James, on an operation for the cure of aggravated retroflexion of the uterus 221
Breast, cancer of the, Mr. W. Watson Cheyne on method of removal of 305
Bright's disease, auditory disturbance in, Prof. Dieulafoy on . . 270
Bristowe, Dr. J. S., on suppurative pyle-phlebitis 65
Bromide of ethyl narcosis 228
Bronchiectatic cavities, empyema and basal lung disease, Dr. Alex. James 58
Brown, Mr. W. H., on notes of a case of excision of the rectum by the sacral route 160
Bursæ, and affections of the tendon-sheaths, Dr. R. Whitman . . 125
Bury, Dr. Judson S., on peripheral neuritis in typhoid fever . . 41
Butler, Mr. H. T., on primary epithelioma of lymphatic glands . 101
" " on paraffin cancer of the scrotum . . . 275

Cæsarean section in placenta prævia, etc., Dr. Galabin on . . 305
Calculus of the bladder, Surg.-Major J. Forbes Keith . . . 166
Cancer of the breast, method of removal of, Mr. W. Watson Cheyne on 305
" " " ear, Sir William Dalby 197
" " " tongue, Dr. N. P. Dandridge 268
" " " " Dr. N. P. Dandridge on Volkmann's operation 146
" " " uterus, causes of recurrence after removal, Dr. Winter on 306
" " " " results of vaginal hysterectomy for, MM. Terrier and Hartmann 306
" paraffin, of the scrotum, Mr. Butler 275
Cardiac asthenia following influenza, Dr. Burney Yeo . . . 250
" displacement in pleuritic effusion, Mr. Langford Symes . 256
" pain, arsenic in, Dr. S. C. Chew 250
" " Dr. Samuel C. Chew on the different forms of . . 43
Carditis, rheumatic, of childhood, Dr. Octavius Sturges . . . 46
Cataract extractions, management of prolapse of the iris after, Mr. W. T. Cant 296
Catheterisation of the biliary ducts, Drs. Terrier and Dally . . 258
Caton, Dr. R., on the symptoms, and treatment by intestinal antisepsis, of enteric fever 27

PAGE

Cerata, pasta, Dr. Jamieson. 393
Cerebellar abscess successfully treated by operation, Mr. H. P. Dean . 199
Cerebro-spinal meningitis, Dr. Trevelyan 243
Chew, Dr. Samuel C., on cardiac pain 43
Cheyne, Mr. W. Watson, articles by 127, 135, 138
Chilblains, Dr. Brogg on 228
Chloralamide in insomnia, Dr. Joseph Collins 231
Chlorosis, sulphur in, Prof. Schulz 228
Cholecystenterostomy, Dr. J. McFadden Gaston 149
Chorea complicating pregnancy, Dr. McCann on 307
" and rheumatism, Drs. Walton and Vickery 246
" hereditary or Huntingdon's, Dr. Ernest T. Reynolds . . 244
Chorion, the diagnosis of cystic degeneration of the, Dr. S. L. Weber on 308
Church, Dr. Archibald, on vertigo of arterio-sclerosis . . . 39
Churton, Dr. Thomas, on exalgine in Graves's disease, and the poisonous dose of exalgine 5
Club-foot, Dr. A. B. Judson on the treatment of 114
Clutton, Mr. H. H., on successful case of ligature of internal jugular vein, etc. 190
Cocainism, Dr. Conolly Norman 229
Coccygodynia, Dr. Olshausen on 308
Collem plasters in eczema 291
Compound ganglion, rice bodies in, Dr. C. S. Evans 285
Cooper, Mr. Arthur, on certain modes of treatment which interfere with the diagnosis of syphilis 182
Counter-irritation in tuberculous bone disease, Mr. W. Watson Cheyne on 287
Creasote and its elements, Dr. E. Main on 229
" in phthisis, Dr. Beverley Robinson on 255
Cripps, Mr. Harrison, on the treatment of imperforate anus . . 162
Curetting the tympanum, Mr. Marmaduke Sheild on 302
Cystitis, chronic, Dr. E. Mansel Sympson on salol in the treatment of 164
" local use of corrosive sublimate in, Dr. Guyon on . . 270
Cysts, pancreatic, Dr. Krecke on 265

Dalby, Sir William, on cancer of the ear 197
Dandridge, Dr. N. P., on cancer of the tongue 146
Davis, Dr. E. P., on the treatment of posterior rotation of the occiput during labour 211
Deafness and nasal stenosis, Mr. Bendelack Hewetson on . . 296
" due to the non-purulent and chronic form of chronic media, Dr. Gradenigo on 300
" labyrinthine, treated by pilocarpin, Mr. G. P. Field on . 196
Dean, Mr. H. P., on a case of cerebellar abscess successfully treated by operation 199
Dermatitis herpetiformis, Dr. Geo. T. Elliot on the treatment of . 176
Diabetes, amputation in, Mr. W. G. Spencer 279
" diet in the slighter form of, Dr. Ebstein 271
" Dr. W. Ebstein on a vegetable albumen "aleuronal" for . 22
" the specific gravity of the urine in, Sir Edward H. Sieveking 78
Diarrhœa, infantile, salicylate of bismuth in 262
Diet in the slighter forms of diabetes, Dr. Ebstein 271
Digitalis in aortic disease, Dr. G. W. Balfour 249
" in the treatment of pneumonia, Dr. R. Hoepfel . . 251

PAGE

Donald, Dr. Archibald, on the treatment of placenta prævia . . 213
Dreschfeld, Dr. Julius, on gastric ulcer 68
Dropsy with kidney disease, Dr. Nestor Tirard 80
Duncan, Dr. William, on the treatment of abortion 215
Dysentery, Dr. A. Brayton Ball on 260
" ipecacuanha in, Dr. Hart on 258–259
Dyspnœa and its treatment by drugs, Dr. W. T. Gairdner . 25, 252
" " " " Dr. Leech 252

Ear, cancer of the, Sir William Dalby on 197
Ebstein, Dr. Wilhelm, on diet in diabetes 22
Ectropion treatment, M. Panas 297
Eczema, collem plasters in 291
" treatment of, Dr. Louis A. Duhring on 291
Ehrlich's test of the urine in typhoid fever, Dr. A. E. Edwards on . 230
Electrolysis, the destruction of hair by, Dr. John T. Bowen on . 177
Elliot, Dr. Geo. T., on the treatment of dermatitis herpetiformis . 176
Emphysema of the lungs, Dr. E. Markham Skerritt . . . 55
Empyema, basal lung disease, and bronchiectatic cavities, Dr. A. James on 58
" Mr. Godlee on site of election for incision . . . 254
" Mr. Godlee on the method of opening a bad case . . 253
" tuberculous, pyopneumothorax, Mr. Godlee on . . 257
Endometritis, Dr. W. R. Pryon on the treatment of . . . 308
" the diagnosis of, Dr. Schultze on 308
Enteric Fever, Dr. R. Caton on intestinal antisepsis in . . . 27
Entropion, treatment of trichiasis and, Dr. W. A. McKeown on . 188
Eosinophile leucocyte in leucocythemia and Hodgkin's disease, Dr. Kantback on the diagnostic value of 232
Epilepsy, surgical treatment of, Dr. Sachs and Prof. Gerster on . 243
Epispadias, Dr. Rosenburger on the operative treatment of . . 272
Epistaxis, Dr. T. K. Hamilton on the treatment of . . . 96
Epithelioma of lymphatic glands, Mr. H. T. Butler on primary . 101
Evans, Dr. C. S., articles by 117, 121
" Dr. Sheldon Guthrie, on favus and its treatment . . . 174
Exalgine, Dr. John Gordon on the clinical uses of 3
" in Graves's disease, and the poisonous dose of exalgine, Dr. T. Churton on 5
Extension in tuberculous joint disease, Mr. W. Watson Cheyne on the use of 289

Favus and its treatment, Dr. Sheldon Guthrie Evans on . . . 174
Femur, simple fracture of the shaft of the, Dr. N. F. Graham on the treatment of, with the long splint 106
Fibroid tumours of the uterus, Dr. John Homans on . . . 223
Field, Mr. G. P., on labyrinthine deafness treated by pilocarpin . 196
Fungoid disease of the uterus, Dr. Lombe Atthill on the treatment of 218

Gairdner, Dr. W. T., on dyspnœa and its treatment by drugs . . 25
Ganglion, compound, Dr. C. S. Evans on the nature of rice bodies in 285
" Dr. Charles S. Evans on 117, 280
Gaston, Dr. J. McFadden, on cholecystenterostomy . . . 149
Gastric ulcer, hæmatemesis, Dr. Dreschfeld on treatment of . . 260
" " perforation in, Dr. Dreschfeld on 261

PAGE
Gastric ulcer, the treatment of, Dr. Julius Dreschfeld on . . 68
Gastritis, catarrhal, Dr. Harold N. Moyer on 63
Gastrostomy, Dr. Senn on 261
Godlee, Mr., articles on empyema 253, 254, 257
Goitre, Dr. Reverdin on enucleation of 280
Gonorrhœa, Dr. Nicoll on 303
" recent advances in the treatment of, Dr. J. H. Nicoll on 184
Gordon, Dr. John, on the clinical uses of exalgine 3
Gould, Mr. A. Pearce, and Dr. Cecil Y. Biss on the causes and treatment of intussusception 152
Gould, Dr. G. M., on a method of infection and treatment of purulent ophthalmia 186
Gout and the mode in which uric acid produces its injurious effects, Sir Wm. Roberts on 8
" management of, Prof. N. Nothnagel on 230
" Sir Wm. Roberts on the diet and regimen of 11
" " " " use of medicinal substances in . . 13
Graham, Dr. N. F., on the treatment of simple fracture of the shaft of the femur with the long splint 106
Granular kidney, Dr. Eisenlohr on the etiology of 273
" lids, Mr. Secker Walker on 298
Gravel, uric acid, Sir Wm. Roberts on mineral springs in the treatment of 277
" " " " on the therapeutics of . . 74
Graves's disease, and the poisonous dose of exalgine, Dr. T. Churton on exalgine in 5
" " the treatment of 231
Guaiacol in pulmonary tuberculosis, Drs. Weill and Diamantberger. 254
Gynæcology, anæsthetics in, Dr. Dudley Buxton on 304

Habitual abortion, asafœtida for, Dr. Turazzo on 308
Hæmatemesis, gastric ulcer, Dr. Dreschfeld on the treatment of . 260
" of anæmic young women, Dr. H. Handford on the . 24
Hæmoptysis as a cause of phthisis, Dr. Philip on 255
Hair, destruction of by electrolysis, Dr. John T. Bowen on . . 177
Hamilton, Dr. T. K., on the treatment of epistaxis 96
Handford, Dr. H., on the hæmatemesis of anæmic young women . 24
Heart, valvular disease of the, Dr. James A. Lindsay on the prognosis of 150
Hemorrhage, etc., after delivery and abortion, Dr. Herman on . 305
" post-partum, Dr. Galabin on treatment of . . . 316
Hemorrhages into the labyrinth in consequence of anæmia, Dr. J. Habermann on 298
Herbert, Mr. H., on perineal drainage in suprapubic lithotomy . 173
Hernia, inguinal, radical cure by Bassini's method 262
" strangulated, Mr. W. H. Bennett on the use of "taxis" in 158
Higgins, Mr. Herbert, on a simple method of dressing operation wounds 84
Hip disease, treatment and its results, Prof. Sayre on . . . 281
Hip-joint, Prof. W. W. Keen on Wyeth's method in amputation of the 278
Hodgkin's disease and leucocythemia, Dr. Kantback on the diagnostic value of the eosinophile leucocyte in 232
Homans, Dr. John, on fibroid tumours of the uterus 223
Huntingdon's (or hereditary) chorea, Dr. Ernest T. Reynolds on . 244

PAGE

Hutchinson, Mr., on operative treatment for intussusception . 73, 179
" Mr. Jonathan, on abdominal tumours from retention . 73
" Mr. J., on syphilitic joint diseases 179
Hydatidiform mole, Dr. G. A. Craigin on 309
Hydronephrosis, intermittent, M.M. Terrier and Baudouin . . 273
Hysterectomy for cancer of uterus, vaginal, MM. Terrier and Hartmann on results of 306
Hysterical angina pectoris, Prof. Charcot on 248

Imperforate anus, Mr. Harrison Cripps on the treatment of . . 162
Infantile diarrhœa, salicylate of bismuth in 262
Influenza, cardiac asthenia following, Dr. Burney Yeo on . . 250
" optic neuritis after, Mr. Simeon Snell on . . . 299
Inguinal hernia, radical cure by Bassini's method, Mr. Hulke on . 262
Insomnia, chloralamide in, Dr. Joseph Collins on 231
Intermittent hydronephronis, MM. W. Terrier and Baudouin on . 273
Intubation and tracheotomy, Drs. Prescott and Goldthwaite . . 254
Intussusception, Mr. Hutchinson on operative treatment for . . 263
" the causes and treatment of, Dr. Cecil Y. Biss and Mr. A. Pearce Gould on 152
Iodine trichloride in Surgery, Dr. Wm. T. Belfield on the use of . 85
Iodoform, the bactericidal properties of, Mr.W.Watson Cheyne on . 232
Ipecacuanha in dysentery, Dr. Hart on 258, 259
Iris, prolapse of the, Mr. W. T. Cant on management after cataract extractions 296

James, Dr. Alex., on empyema, basal lung disease, and bronchiectatic cavities 58
Jejuno-gastrostomy for pyloric obstruction, Mr. G. T. Hankins on closure of artificial opening 264
Johnson, Dr. Geo., on some sources of error in testing for sugar in the urine 78
Joint diseases, syphilitic, Mr. J. Hutchinson, Jr., on . . . 179
Judson, Dr. A. B., on some practical points in the treatment of club-foot 114
Jugular vein, ligature of internal, and trephining lateral sinus in an ear case, etc., Mr. H. H. Clutton on 190

Keith, Surg.-Major J. Forbes, on the complete abandonment of the operation for removing entire calculi from the bladder . . 166
Kidney, granular, Dr. Eisenlohr on the etiology of 273
" movable, Mr. Henry Morris on the forms of . . . 274
Knee-joint, method of arthrectomy for disease of the, Mr. W. Watson Cheyne on 279

Labyrinthine deafness treated by pilocarpin, Mr. G. P. Field on . 196
Lane, Mr. A., on modification of operation for excision of the tongue 268
Laryngitis, treatment of tuberculous, Dr. Goughenheim on . . 257
Larynx and pharynx, foreign bodies in the, Mr. A. J. Brady on . 145
Leucocythemia and Hodgkin's disease, Dr. Kantback on the diagnostic value of the eosinophile leucocyte in . . . 232
Limont, Mr. J., and Dr. F. Page, on cicatricial stricture of the pylorus ; pyloroplasty ; cure 147

PAGE

Lindsay, Dr. James A., on the prognosis of valvular disease of the heart 50
Lithotomy, perineal drainage in suprapubic, Mr. H. Herbert on . 173
Little, Mr. E. Muirhead, on the treatment of Pott's disease . . 129
Local anæsthesia in disease of the spinal cord, Dr. Allen Starr on . 244
Lovett, Dr. R. W., on the surgical aspect of the paralysis of new-born children 98
Lungs, Dr. E. Markham Skerritt on interlobular emphysema of the . 55
Lymphatic glands, primary epithelioma of, Mr. H. T. Butler on . 101
Lymphosarcoma, arsenic in, E. Romberg on 233
Lysol, Dr. Dorland on 233

Mammary abscess, treatment of, Dr. Hache on 309
Mansell-Moullin, Mr. C. W., on suprapubic prostatectomy . . 169
Marie, osteo-arthropathie pneumique of 234
Marshall, Drs. C. F., and Bilton Pollard on thirty-seven cases of tuberculous disease of the hip-joint, etc. 132
Mastitis, simple chronic, Mr. H. B. Robinson on 202
" tuberculous, Mr. H. B. Robinson on 309
Mastoid process, operations upon the, Dr. Heiman on . . . 299
McBride, Dr. P., on tuberculosis of the pharynx and larynx . . 52
McKeown, Dr. W. A., on the treatment of trichiasis and entropion . 188
Measles and intermittent fever, optic neuritis after, Dr. Woods on . 302
Meningitis, cerebro-spinal, Dr. Trevelyan on 243
Menstruation, painful, Dr. James Oliver on treatment of . . 313
Mitral murmurs, Dr. J. P. Crozer Griffith on mid-systolic and late-systolic 251
Mole, hydatidiform, Dr. G. A. Craigin on 309
Moyer, Dr. Harold N., on catarrhal gastritis 63
Mumps, incubation of, Mr. Arthur Stedman on 265
Murray, Mr. G. R., on the treatment of myxœdema with thyroid juice 19
" Mr. R. W., on the radical cure of psoas abscess . . . 142
Musser, Dr. J. H., articles by 6
Myxœdema, Mr. G. R. Murray on thyroid juice in the treatment of 19
" treated by subcutaneous injections of an extract of sheep's thyroid, Dr. Alex. Napier on a case of . . 16

Naphthol in skin diseases, Dr. C. W. Allen on 292
Napier, Dr. Alex., on a case of myxœdema treated by subcutaneous injections of an extract of sheep's thyroid 16
Nasal stenosis and deafness, Mr. Bendelack Hewetson on . . 296
Nephritis, scarlatinal, Dr. Ziegler on its prevention 276
Nephrorrhaphy and its after-effects, Dr. Tuffier on . . . 274
Neuritis, optic, after influenza, Mr. Simeon Snell on . . . 299
" " " measles and intermittent fever, Dr. Woodson . 302
Neuritis, peripheral, in typhoid fever, Dr. Judson S. Bury on . . 41
New-born children, Dr. R. W. Lovett on the surgical aspect of the paralysis of 98
Nicoll, Dr. J. H., on gonorrhœa 184
Nitro-glycerine in Raymond's disease, Dr. Cates on . . . 236

Occiput during labour, posterior rotation of the, Dr. E. P. Davis on the treatment of 211

PAGE

Operation wounds, a simple method of dressing, Mr. Herbert Higgins on 84
Ophthalmia, a method of infection and treatment of purulent, Dr. G. M. Gould on 186
Optic neuritis after influenza, Mr. Simeon Snell on 299
" " " measles and intermittent fever, Dr. Woods on . 302
Osteo-arthropathic pneumique of Marie 234
Osteo-arthropathy of pulmonary origin, Dr. Moebius on . . . 234
Osteomyelitis of streptococcus infection, Drs. Koplik and Arsdale on 282
" streptococcus, in children, Dr. W. W. Van Arsdale on 87
Otitis media, Mr. Percy Dean on the necessity of making a complete search for 300
" " Dr. Gradenigo on deafness due to the non-purulent and chronic form 300
" " Dr. Max Janicke on a new boric acid preparation for . 300
Ozæna, treatment of, Dr. Meijer on 302
" " " Dr. Tarbau on 302

Page, Dr., and Mr. J. Limont, on cicatricial stricture of the pylorus; pyloroplasty; cure 147
Pancreatic cysts, Dr. Krecke on 265
Paraffin cancer of the scrotum, Mr. Butler on 275
Paralysis of children which occur during and after infectious diseases, Dr. M. Imogene Bassette remarks upon . . 37
" new-born children, Dr. Lovett on the surgical aspect of 98
Paraplegia in Pott's disease, Mr. Muirhead Little on . . . 245
Pasta cerata, Dr. Jamieson on 293
Perforation in gastric ulcer, Dr. Dreschfeld on 261
Peritonitis, idiopathic, Prof. Welch on 266
" its nature and prevention, Mr. Lawson Tait on . . 206
" puerperal, Dr. Galabin on abdominal section for . . 314
" recurrent pelvic, Dr. Cullingworth on treatment by abdominal section 314
" suppurative, Dr. W. Körte on 266
Perityphlitis, surgical treatment of, Dr. Schede on 267
Pernicious anæmia, transfusion of blood in, Dr. Brakenridge on . 235
Pharynx and larynx, foreign bodies in the, Mr. A. J. Brady on . 145
" " " tuberculosis of the, Dr. P. McBride on . . 52
Phthisis, creasote in, Dr. Beverley Robinson on 255
" hæmoptysis as a cause of, Dr. Philip on 255
Piperazin, Dr. Dorland on 236
Placenta prævia, Cæsarean section in, Dr. Galabin on . . . 305
" " Dr. E. E. Montgomery on 315
" " Dr. A. Donald on the treatment of . . . 213
Pleurisy, chronic, Mr. B. Baskett on the treatment of a case of continuous drainage. 144
" Dr. H. Köster on the treatment of by salicylic preparations . 256
" Prof. Dujardin-Beaumetz on the treatment of . . . 255
Pleuritic effusion, Mr. Langford Symes on cardiac displacement in . 256
Pneumonia treated by digitalis, Dr. R. Hoepfel on 257
Pneumothorax, aspiration in, Mr. G. A. Sutherland on . . . 61
Pollard and Marshall on thirty-seven cases of tuberculous disease of hip-joint, etc. 132
Polypi, aural, Mr. Marmaduke Sheild on 192

PAGE

Poore, Dr. Charles T., on the treatment of tuberculous glands in the neck 93
Post-partum hemorrhage, treatment of, Dr. Galabin on 316
Pott's disease, paraplegia in, Mr. Muirhead Little on 245
" " the treatment of, uncomplicated, Mr. E. Muirhead Little on 129
" fracture at the ankle, Dr. Lewis A. Stimson on . . . 108
" " complications of, Dr. L. A. Stimson on . . . 282
" " Dr. L. A. Stimson on diagnosis of 283
" " treatment of old cases of 285
Power, Mr. D'Arcy, on ununited fractures in children . . . 111
Pregnancy, chorea complicating, Dr. McCann on 307
Prostatectomy, suprapubic, Mr. C. W. Mansell-Moullin on . . 169
Psoas abscess, the radical cure of, Mr. R. W. Murray on . . . 142
Purulent ophthalmia, Dr. G. M. Gould on a method of infection and treatment of, ... 186
Pyle-phlebitis, suppurative, Dr. J. S. Bristowe on 65
Pyloric obstruction, jejuno-gastronomy for, Mr. G. T. Hankins on closure of artificial opening 264
Pylorus, cicatricial stricture of the, Mr. J. Limont and Dr. Frederick Page on 147
Pyopneumothorax and tuberculous empyema, Mr. Godlee on . . 257

Raynaud's disease, nitro-glycerine in, Dr. Cates on 236
Rectum, excision of the, Mr. W. H. Brown on notes of a case of, by the sacral route 160
Retroflexion of the uterus, aggravated, Dr. J. Braithwaite on an operation for the cure of 221
Rheumatic carditis of childhood, Dr. Octavius Sturges on the . . 46
Rheumatism and chorea, Drs. Walton and Vickery on 246
Rice bodies in compound ganglion, Dr. C. S. Evans on their nature 285
Ringworm, treatment of, Dr. Alfred Eddowes on 293
" " " Dr. Phineas Abraham on 293
Roberts, Sir Wm., articles by 8, 11, 13, 74
Robinson, H. B., on mastitis 262
Rötheln and scarlet fever, differential diagnosis of 237

Salicylic preparations in the treatment of pleurisy, Dr. H. Köster on 256
Salol in the treatment of chronic cystitis, Dr. E. Mansel Sympson on 164
Salpingitis, Dr. Strong on dilatation and drainage of the uterus in . 316
Scarlatinal nephritis, Dr. Zeigler on the prevention of . . . 276
Scarlet fever, differential diagnosis of Rötheln and 237
" treatment of the throat in, Dr. Graham Steell on . 237
Scoliosis, Dr. Schede on new treatment for 286
Scrotum, paraffin cancer of the, Mr. Butler on 275
Senn, Dr., on gastrostomy 261
Septum nasi in tabes dorsalis, destruction of the, Dr. A. G. Barrs on 246
Sheild, Mr. Marmaduke, articles by 296
Shoulder-joint, tubercular disease of, Drs. Mondan and Audry on . 286
Sieveking, Sir Edward H., on the specific gravity of the urine in diabetes 78
Skerritt, Dr. E. Markham, on interlobular emphysema of the lungs . 55

PAGE
Skin disease, antimony in, Drs. Jamieson and Douglas on . . 290
" diseases, naphthol in, Dr. C. W. Allen on 292
" " tumenol in, Dr. Neisser on 259
Snell, Mr. Simeon, on optic neuritis after influenza 299
Solitary and agminate glands of the intestine, Drs. Smith and Parsons on enlargement of 258
Spencer, Dr. H. S., on intra-venous injection of "normal" salt solution for the grave hemorrhage of midwifery 204
Spinal and other tubercular abscesses, Mr. F. Treves on the treatment of 88
Spinal cord, Dr. M. Allen Starr on local anæsthesia as a guide in the diagnosis of lesions of the lower . . . 31
" " lesions, hysterical paralysis and peripheral neuritis, Dr. Allen Starr on anæsthesia in 242
" " local anæsthesia in disease of the, Dr. Allen Starr on . 31
Spine, the mechanical treatment of tuberculous disease of the, Mr. W. Watson Cheyne 138
Starr, Dr. M. Allen, articles by 31, 242, 292
Steell, Dr. Graham, on treatment in scarlet fever 1
Stimson, Dr. L. A., articles by 108, 282, 283
Streptococcus infection, osteomyelitis of, Drs. Koplik and Arsdale on 282
" osteomyelitis in children, Dr. W. W. Van Arsdale on 87
Sturges, Dr. Octavius, on the rheumatic carditis of childhood . . 46
Sugar in the urine, Dr. Geo. Johnson on some sources of error in testing for 78
Sulphonal as a sedative and hypnotic, Dr. T. Carlyle Johnstone on . 238
" poisonous action of, Dr. Camillo Furst on . . . 237
Sulphur in chlorosis, Prof. Schulz on 228
Sutherland, Mr. G. A., on aspiration in pneumothorax . . . 61
Sweating, excessive, treatment of 294
Sycosis, Dr. Kromayer on 294
Sympson, Dr. E. Mansell, on salol in the treatment of chronic cystitis 164
Syphilis, certain modes of treatment which interfere with the diagnosis of, Mr. Arthur Cooper on 182
" hereditary, affections of testis in, Dr. G. Carpenter on . 276
" treatment by mercurials, Prof. Eduard Lang on . . 303
Syphilitic joint diseases, Mr. J. Hutchinson, Jr., on . . . 179

Tabes dorsalis, Bonuzzi's method of treatment of 247
" " destruction of the septum nasi in, Dr. A. G. Barrs on 246
" " Dr. Raymond on its causes 247
Tait, Mr. Lawson, on peritonitis: its nature and prevention . . 206
"Taxis" in strangulated hernia, Mr. W. H. Bennett on the use of . 158
Tendon-sheaths and bursæ, some affections of the, Dr. R. Whitman on 125
" " tuberculosis of the, Dr. C. S. Evans on . . . 121
Testis in hereditary syphilis, Dr. Carpenter on 276
Thiophen as a disinfectant 238
Thyroid juice in the treatment of myxœdema, Mr. G. R. Murray on 19
Tirard, Dr. Nestor, on dropsy with kidney disease 80
Tongue, cancer of the, Dr. N. P. Dandridge on 268
" " " " " " " Volkmann's operation for 146
" mortification of, operation for excision of the, Mr. A Lane on, 268

PAGE
Tracheotomy and intubation, Drs. Prescott and Goldthwaite . . 254
Treves, Mr. F., on the treatment of spinal and other tubercular abscesses 88
Trichiasis and entropion, Dr. W. A. McKeown on the treatment of . 188
Tubercular disease of shoulder-joint, Drs. Mondan and Audry on . 286
Tuberculous bone and joint disease, Mr. W. W. Cheyne on the operative treatment of 127
" " disease, counter-irritation in, Mr. W. Watson Cheyne on 287
" disease of the hip-joint, Drs. Bilton Pollard and C. F. Marshall on statistics of thirty-seven cases . 132
" " of the spine, Mr. W. Watson Cheyne on the mechanical treatment of 138
" empyema and pyopneumothorax, Mr. Godlee on . 257
" glands in the neck, Dr. Charles T. Poore on the treatment of 93
" joint disease, Mr. W. W. Cheyne on the use of extension in, 289
" " " abscesses in, Mr. W. Watson Cheyne on their treatment 287
" " Mr. W. Watson Cheyne on the relative value of arthrectomy and excision in the treatment of 135
" laryngitis, Dr. Gougenheim on the treatment of . . 257
" mastitis, Mr. H. B. Robinson on 309
" ulceration of the stomach, Dr. J. H. Musser on . . 269
Tuberculosis of the pharynx and larynx, Dr. P. McBride on . . 52
" of the tendon-sheaths, Dr. C. S. Evans on . . 121
" pulmonary, Drs. Weill and Diamantberger on guaiacol in 254
Tumenol in skin diseases, Dr. Neisser on 295
Tympanum, curetting the, Mr. Marmaduke Sheild on . . . 302
Typhoid fever, Dr. J. H. Musser on the dangers of antipyretics in . 6
" " Dr. Judson S. Bury on peripheral neuritis in . . 41
" " Ehrlich's test of the urine in, Dr. A. E. Edwards on 230
" " the cold-water treatment of 239

Ulceration of the stomach, Dr. J. H. Musser on tuberculous . . 269
Ulcer, gastric, perforation in, Dr. Dreschfeld on 261
" " the treatment of, Dr. Julius Dreschfeld on . . 68
" " hæmatemesis, Dr. Dreschfeld on treatment of . . 260
Ulcers, venereal, Dr. T. Edmund Güntz on aristol for . . . 304
Uric acid gravel and gout, Sir Wm. Roberts on their mutual relations 241
" " Sir Wm. Roberts on the therapeutics of . . 74
" " " " " mineral springs in the treatment of 277
Uric acid, its salts, Sir Wm. Roberts on 241
" spontaneous liberation and precipitation of from urine, Sir Wm. Roberts on 240
Urine, error in testing for sugar in, Dr. Geo. Johnson on some sources of 78
" in diabetes, the specific gravity of the, Sir Edward H. Sieveking on 78
" " typhoid fever, Ehrlich's test of the, Dr. A. E. Edwards on 230
Uterus, aggravated retroflexion of the, Dr. James Braithwaite on an operation for the cure of 221

PAGE

Uterus, cancer of, MM. Terrier and Hartmann on results of vaginal hysterectomy for 306
" cancer of the, Dr. Winter on causes of recurrence after removal 306
" dilatation and drainage of, in salpingitis, Dr. Strong on . 316
" fibroid tumours of the, Dr. John Homans on 223
" fungoid disease, Dr. Lombe Atthill 218

Vaginal hysterectomy for cancer of uterus, MM. Terrier and Hartmann on results of 306
Venereal ulcers, aristol for, Dr. T. Edmund Güntz 304
Vertigo of arterio-sclerosis, Dr. Archibald Church on 39
Volkmann's operation for cancer of the tongue, Dr. N. P. Dandridge on 146

Whitman, Dr. Royal, on some affections of the tendon-sheaths and bursæ 125
Wyeth's method in amputation at the hip-joint, Prof. W. W. Keen on 278

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